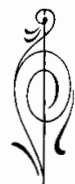


MORT'S
DOCK



FIFTY YEARS AGO,
and TO-DAY

HISTORICAL—DESCRIPTIVE—ILLUSTRATIVE

FOUNDING A PIONEER INDUSTRY.

A STORY OF ENTERPRISE and ENGINEERING PROGRESS
and DEVELOPMENT.

**Explosives, Machinery and Supplies for
Mining, Quarrying, Dredging, Sluicing,
Irrigation, &c. Contractors',
Engineers' and Builders'
Sundries.**

R. A. HERVEY

TELEPHONE 618.

Established 1884.

SOLE AGENT
for Patented Articles
and Goods of Special Manufacture.
Hard-work Saving Devices a speciality.

CORNER
Clarence and King Sts., SYDNEY

HARTMANN "RAHTJEN'S" COMPOSITION



RED HAND BRAND.



For exceptionally FOULING WATERS.

Red Hand Brand

Waterline Paint.

Hartmann's Anticorrosive Paints

Specially prepared for insides and for exposed metals of all descriptions.

Annually supplied to over 11,200,000 tons of MERCANTILE MARINE and 1,500,000 tons of the BRITISH and FOREIGN NAVIES.

Australian Agents.

Sydney: BANKS BROS., 91 Pitt Street.

Melbourne: CLEVELAND & GEORGE, Queen Street.

Brisbane: WEBSTER & CO., Mary Street.

GEO. J. BANKS, Colonial Representative.

New Zealand Agents:

Christchurch: F. GRAHAM & SON.

Dunedin: KEITH RAMSAY.

Wellington: W. & G. TURNBULL.

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In Australia our Paints are supplied to

A.U.S.N. CO. McIlwraith, McEacharn & Co. Ltd.

Howard Smith Co. Ltd. Huddart Parker & Co. Prop. Ltd.

Arch. Currie & Co. Mort's Dock Engineering Co. Ltd.

And other Steamship Companies.

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A.D. 1852

A.D. 1908

GOLDSBROUGH, MORT and COMPANY LIMITED

WOOL, Produce and Grain Salesmen

SYDNEY.

Pioneers of the Wool Trade in 1852. Up-to-Date in 1908

FULL MARKET VALUES.

PROMPT RETURNS.

PROCEEDS OF ALL CONSIGNMENTS

Correspondence

placed in a SEPARATE TRUST ACCOUNT with

Invited.

Our Bankers.

Agents for THE WESTERN ASSURANCE COMPANY

(FIRE and MARINE).

E. J. E. MACKENZIE, Manager.



THE LATE THOMAS SUTCLIFFE MORT.

THE N.S.W Fresh Food & Ice Co. Ltd.



Established in 1875 by the late T. S. MORT, the Founder of Refrigeration.



Of the many industries with which the late T. S. MORT was identified none concern the general public more than the N.S.W. FRESH FOOD & ICE CO., LTD. The name indicates the nature of the business, but few have any idea of the many difficulties that had to be overcome before even moderate success was achieved. The aims and objects which led to the foundation of the Company are national in character, and are best described by repeating the deceased gentleman's own words, when speaking at the opening of the new meat industry at Lithgow, N.S.W., on September 2nd, 1875:—

"He had long been anxious to see introduced into the City of Sydney fresh, pure milk at a cheap price. That he thought a matter of intense importance, and he should feel very proud if he could succeed in carrying out the scheme he had in view. . . . It was very desirable for the welfare of the rising population that it should be supplied with good, wholesome milk. They might rely upon it that not only the physical but the moral element also was concerned in it, and he hoped that those who had the power to join hands in helping him would not fail to do so, in order that he might carry out his plans. . . .

"There was another point that he must not leave unnoticed—that was in regard to the export of provisions. He maintained that this country was destined to become the great feeder of Europe. Before long France and England would look to us almost entirely for their supply of food. How wide is the field of labor may be judged from the fact that the estimated existing yearly deficiency in the annual food supply of the English metropolis alone amounts to no less than 102,000,000 lbs.; while, if we take the whole kingdom, it reaches the enormous quantity of 3,544,000,000 lbs., equal to about 70,880,000 sheep. That was the supply of London alone, and when they considered the enormous quantities consumed in other parts of Great Britain and France, they might form some idea of the demand there would be for our produce."

Mr. Mort concluded his address, which was punctuated with cheers, in the following words:—"I feel as I have ever felt—that there is no work on the world's carpet greater than this in which I have been engaged. Its object and aim may be

summed up in these words: 'There shall be no more waste.' That is the sentiment that has kept me nerved to the great battle I have been fighting, which has induced me, single-handed, to risk so large a portion of my children's heritage, and to follow up to the very end the great truth which my friend, Mr. Nicolle, showed me in the beginning was to be attained. I knew from the hour of our first experiments that the truth was at the bottom of the well, but I had no idea the well was so deep. . . . Yes, gentlemen, I now feel that the time has arrived, or, at all events, is not far distant, when the various portions of the earth will each give forth their products for the use of each and of all; that the over-abundance of one country will make up for the deficiency of another; the superabundance of the year of plenty serving for the scant harvest of its successor—for cold arrests all change. Science has drawn aside the veil, and the plan stands revealed. Faraday's magic wand gave the keynote, and invention has done the rest. Climate, seasons, plenty, scarcity, distance, will all shake hands, and out of the commingling will come enough for all; for 'the earth is the Lord's and the fulness thereof'; and it certainly is within the compass of man to ensure that all His people shall be partakers of that fulness. God provides enough and to spare for every creature He sends into the world; but the conditions are often not in accord. Where the food is, the people are not, and where the people are, the food is not. It is, however, as I have just stated, within the power of man to adjust these things; and I hope you will all join me in believing that the first grand step towards the accomplishment of this great end is in what you yourselves, gentlemen, have this day been partakers and witnesses of."

Of late years the business of the N.S.W. Fresh Food and Ice Co. has considerably expanded, and now embraces the following Departments:—



**Cold Storage & Refrigeration.
Ice Making.
Milk Delivery (10,000 Gallons daily).
Butter Making.**

**Fish, Game & Poultry Dept.
Fruit Department.
Bread Department.
Pastry, Cakes, etc.**

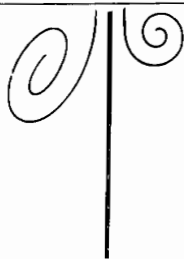


Head Offices and Works : **25 HARBOUR STREET, SYDNEY, N.S.W.**

THOMAS SUTCLIFFE MORT



A Note and



IN the chronicles of pioneering pluck and enterprise in Australia, no name is more honored than that of THOMAS SUTCLIFFE MORT. It is imperishably placed in the treasury of our history. Among his many achievements, that of Mort's Dock, which project he conceived, founded and carried to success, in the face of

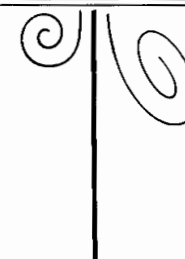


STATUE OF THOMAS SUTCLIFFE MORT, MACQUARIE PLACE, SYDNEY.

enormous difficulties and discouragements, will alone suffice to remind Australians of their debt of gratitude to his genius and labors. Thomas Sutcliffe Mort was born at Bolton, Lancashire, England, December 23rd, 1816. When 22 years of age he arrived in Sydney with excellent credentials from the firm who employed him, and



a Tribute.



PAUL & GRAY Limited

SYDNEY,
MELBOURNE, BRISBANE,
AND NEWCASTLE.

SHIP CHANDLERS
PROVISION MERCHANTS



SUSSEX ST SYDNEY

AND IMPORTERS OF GENERAL HARDWARE
AND COLLIERY REQUISITES.



SCOTT ST NEWCASTLE

H. E. ROSE & COY.



FLINDERS ST MELBOURNE



EAGLE ST BRISBANE

CABLE
ADDRESS
"PORTLIGHT"
SYDNEY.



declared him "a trustworthy clerk." He entered the Sydney firm of Aspinwall, Brown & Co., and five years later set up on his own account, with only brains and energy for capital, as an auctioneer. His success was immediate and substantial. But he had big, robust ideas which he put into the firm of Mort and Co. (afterwards Goldsbrough, Mort and Co., the firms of Goldsbrough & Co., of Melbourne, and Mort & Co., of Sydney, having been amalgamated), and initiated the public wool sales in Australia. He also proved his capacity as a financier. He was prominent in promoting the Hunter River Steam Navigation Company (1841), and the Sydney to Parramatta private railway project (1849). Next followed the flotation of the Great Nugget Vein Mining Company, which was the first company launched for the working of auriferous land. The Company was formed by Mr. Mort. Very primitive ideas of mining existed at that time, and people who invested their money in quartz mining expected an immediate return upon their capital. In consequence of these mistaken notions, discontent prevailed amongst the shareholders. Mr. Mort then called them together, and, after explaining matters, offered to take up the shares of anyone who was dissatisfied. The explanation was so satisfactory that not one of them took advantage of his generous offer. The necessity for docking and engineering accommodation and facilities prompted his scheme now known world-wide as Mort's Dock and Engineering Company, Ltd. In this great project he invested nearly £100,000. In 1856 he realised the potentialities of the dairying industry, and established the famous dairy settlement of Bodalla, occupying 38,000 acres of rich soil, in the Moruya district. He backed this undertaking with £100,000. Mr. Mort took a prominent part in the flotation of the important Peak Downs Copper Company, Queensland, and established the Waratah Coal Mining Company, Newcastle. One of his greatest and most public-spirited enterprises had to do with the meat export question. At a very early date he realised the importance and possibilities of this trade, and exported in the ordinary but ineffectual way. However, he became associated with Mr. E. D. Nicolle, a scientist, who had a scheme for freezing meat. Confident of its efficiency and commercial success, Mr. Mort put £80,000 into the establishment of depots at Lithgow and Darling Harbour, and the erection of plant, machinery, and appliances. He then attempted to send a shipment of 200 tons of frozen meat to England by the sailing ship "Northam" (formerly a P. and O. boat): but, unfortunately, a part of the freezing plant became disarranged, and, as the ship could not wait to

have it repaired, the shipment was abandoned. This was a hard blow to the plucky pioneer; all the harder in the light of the present perfect success of the frozen meat treatment. But Mr. Mort still persisted, and may truthfully be said to have been the father and pioneer of the frozen meat trade and industry, now colossally proportioned, nearly all over the world. The fruits of his enterprise were not altogether lost, as the establishment at Darling Harbour was turned into a business (now styled the N.S.W. Fresh Food and Ice Co., Limited) for the supply to the general public of fresh and wholesome food arriving daily from the producing districts, in direct railway touch with Darling Harbour. Mr. Mort erected works at Lithgow for the purpose of slaughtering and freezing cattle, and on September 2nd, 1875, he gave a luncheon there to a most distinguished company—the food for the occasion being entirely Australian, and frozen for some months—at which he made a remarkable speech showing the importance of the transmission of frozen food all over the world. (An extract from this speech appears on page 6). Although Mr. Mort built and lived in for many years a beautiful home, known as Greenoaks, nestling in a delightful garden on a site that was once in parts a shifting sandhill and a mass of rock, fronting Darling Point Road and Double Bay, he, in his later years, displayed a preference for the rest and tranquility of the country, so he was frequently at his splendid estate at Bodalla. On a bleak day, he contracted a chill at a friend's funeral there, and died, after a few days' illness, at the age of 63. His death was deplored throughout Australia, by warm friends and genuine admirers, near and far. Personally, Thomas Sutcliffe Mort was beloved for his kindly, genial, generous character, and bright and sturdy temperament; commercially, he was the soul of honor, and the repository of every trust and confidence. He was twice married—firstly, to Theresa Shephard, eldest daughter of James Laidley (sometime Deputy Commissary-General), and secondly to Miss Marieanne Macaulay. He left five sons and two daughters by his first marriage, and two sons by his second marriage. On Mr. Mort's death a movement was widely and enthusiastically supported to erect a monument to his memory. This resulted in Connolly, of Florence, being commissioned to execute the statue which assists in adorning the historic spot in Macquarie Place—the site on which Governor Phillip proclaimed the foundation of the Colony of New South Wales. The Mort statue was the first erected to perpetuate the worth and work of "a plain citizen at the Antipodes."



Portuguese Joannese, 1728.

Ceylon



Pagoda. 1799.



Dutch Guilden, 1780.

Bank of New South Wales

ESTABLISHED 1817.

PAID-UP CAPITAL	-	-	-	-	-	£2,500,000.
RESERVE FUND	-	-	-	-	-	1,560,000.
RESERVE LIABILITY OF PROPRIETORS	-	-	-	-	-	2,500,000.
						<u>£6,560,000.</u>

Directors :

THE HON. C. K. MACKELLAR, M.L.C., PRESIDENT; RICHARD BINNIE, Esq.; THE HON. SIR NORMAND MACLAURIN, KT., M.L.C.; SENATOR THE HON. JAMES THOMAS WALKER; THE HON. REGINALD JAMES BLACK, M.L.C.; SIR JAS. READING FAIRFAX, KT.

General Manager

J. RUSSELL FRENCH.

Head Office - - SYDNEY.

THOS. HUNT IVEY, Manager.

WALTER POTTS, Assistant Manager.



Dump, 1813.

From 1788 to 1817 the primitive method of barter, mostly through the medium of spirituous liquors, supplied the wants of the early settlers of New South Wales. Rum paid for nearly everything; the admission to a theatrical performance was "meal or rum taken at the door." Letters, I.O.U.'s and Government store receipts for produce, and promissory notes on demand passed as currency up to 1830, and, in addition, coins of all description—Joannese (£4), Mohur (37/6), Pagoda (8s.), Ducat (9/6), Spanish Dollar (5/-), Rupee (2/6), Holey Dollar (5/-), Dump (a piece punched from the centre of the dollar) (1/3), and many others. On 22nd November, 1816, a meeting was held by the direction of the Governor at the chambers of Mr. Judge Advocate Wylde, to take into consideration the present state of the colonial currency, and what would be the consequence of an immediate

LIABILITIES

Notes in Circulation	...	...	£5,635	8	0
Personal Balances	...	...	1,859	4	8
					<u>£7,494 12 8</u>
Bank Subscriptions received—					
1st Instalment	...	...	1,500	0	0
2nd "	...	...	1,350	0	0
3rd "	...	...	775	0	0
					<u>3,625 0 0</u>
Discount	...	...	250	13	0
Premiums	...	...	30	14	5
					<u>281 7 5</u>
					<u>£11,401 0 1</u>

ASSETS.

Bills in Treasury, Store Receipts, and Specie on hand	...	£3,613	2	10
Bills of Exchange falling due	...	5,693	5	1
Mortgages	...	1,381	0	0
Office Goods and Furniture cost	...	340	10	4
Bank Expenditure for Salaries, Wages, Stationery, &c.	...	373	1	10

£11,401 0 1

The Bank has now 251 Offices and Agencies, and the figures

of its latest Balance Sheet total - - £36,412,301 19s. 6d.



Holey Dollar, 1803.



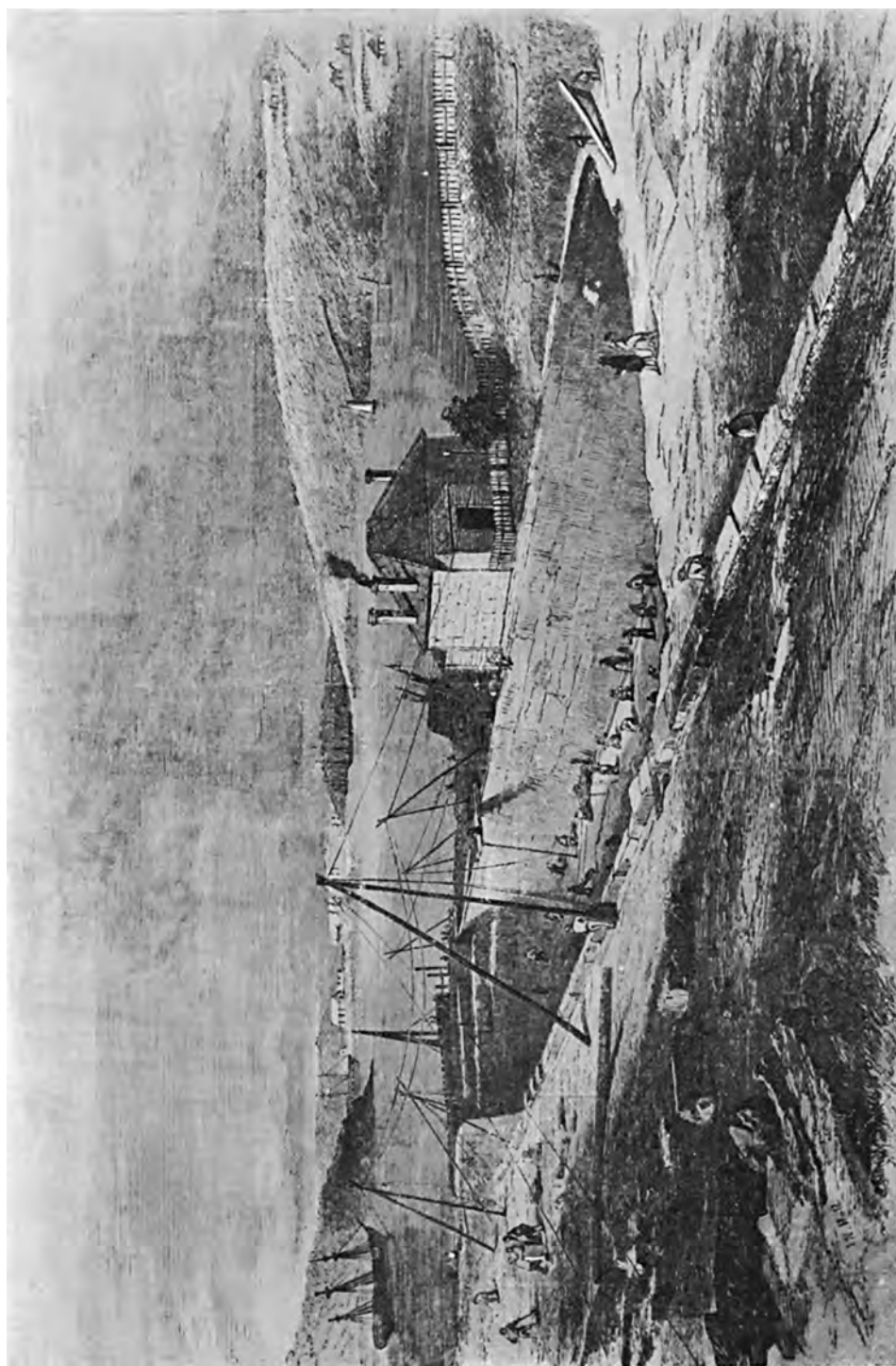
Sicca Rupee.



Spanish Dollar, 1759.



MORT'S DOCK IN 1854—THE FIRST EXCAVATION.



MORT'S DOCK IN 1855—THE EXCAVATION COMPLETED.



"UNION" CEMENT



The COMMONWEALTH PORTLAND CEMENT COMPANY LIMITED.

CONTRACTORS TO

The New South Wales Government.
 The Railway Commissioners, N.S.W.
 The Met. Board of W. S. & Sewerage, Sydney.
 The Sydney Harbour Trust.
 The Municipal Council of Sydney.
 The Imperial Establishment, Sydney.
 The Victorian Railway Department.
 The Melbourne & Metropolitan Board of Works.
 The Commonwealth Government.
 The Railway Commissioners of Queensland.
 The Townsville Harbour Board.
 The Rockhampton Town Council.
 The West Australian Government.
 The Perth City Council.
 The Metropolitan Drainage Board, Hobart.
 The Launceston Corporation.
 The Dunedin Drainage Board.
 Mort's Dock and Engineering Co. Ltd.

And others.



Some Prominent Buildings and Constructions in which "Union" Cement has been used—

Cataract Dam, N.S.W.
 New Government Savings Bank, Sydney.
 Central Railway Station, Sydney.
 Naval Victualling Store, Darling Island.
 Lighthouse, Bradley's Head.
 Woolloomooloo Government Baths.
 Penitentiary, Long Bay.
 Fish Hatchery, Pt. Hacking.
 University Building, Martin Place, Sydney.
 Colonial Sugar Co.'s Building, Sydney.
 Henry Bull & Co.'s Warehouse, Sydney.
 Dalgety & Co.'s Wool Store, Sydney.
 N.Z. Loan & M. A. Co.'s Wool Store, Sydney.
 Marcus Clark & Co.'s Building, Sydney.
 Skating Rink, Wonderland City.
 John Sands' Factory, Sydney.
 Betting Ring, Randwick Racecourse.
 Medlow Bath.
 William Sandford Ltd., Blast Furnace, Lithgow.
 New Central Railway Station, Melbourne.
 A.M.P. Society's Building, Melbourne.
 Adelaide S.S. Co.'s Ltd., Building, Melbourne.
 And many others all over Australia.

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 ADELAIDE—Dalgety & Co. Ltd.
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 BRISBANE & TOWNSVILLE—Thos. Brown & Sons Ltd.
 HOBART—James Macfarlane Bros. & Co.



"UNION" Brand of PORTLAND CEMENT

(guaranteed to pass all tests of the N.S.W. Government).

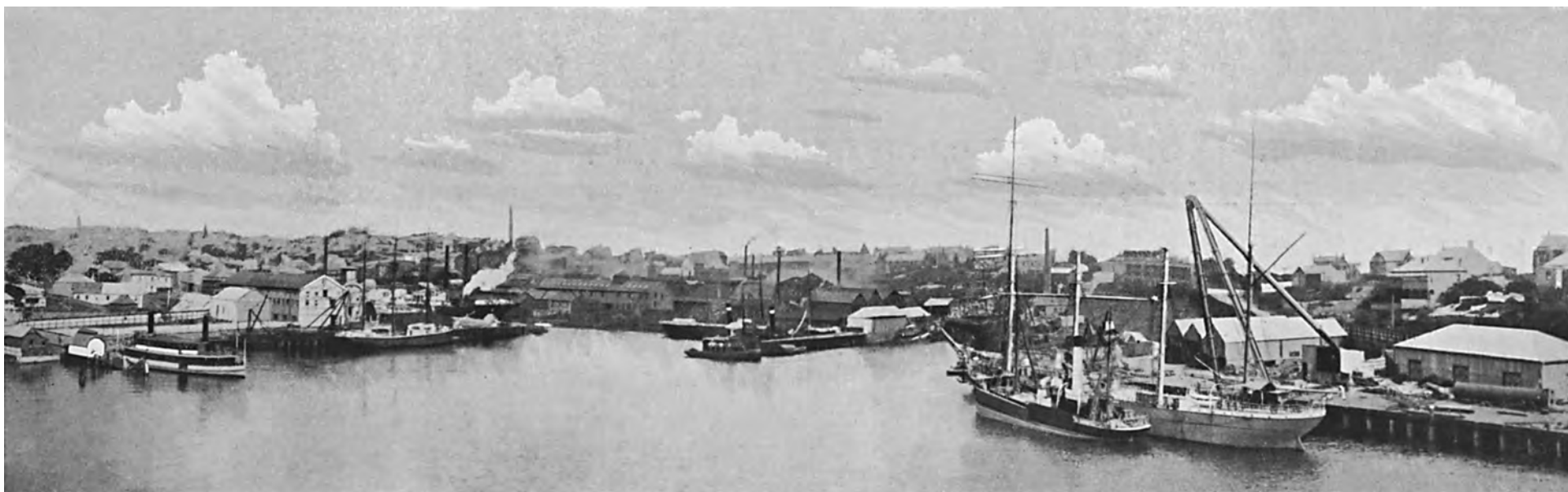
BUILDING LIME of best quality.

HOUSEHOLD and STEAM COAL.

LIMESTONE of highest grade.

Works:  Portland, New South Wales.

Sydney Office: Mutual Life of New York Bldg., Martin Place.



HEADQUARTERS AT MORT'S BAY—1908.



WOOLWICH BRANCH—1908.

MERCANTILE MUTUAL INSURANCE CO. LTD.

Subscribed Capital: £150,000, with power to increase to £1,000,000

Head Office : 120 PITT ST., SYDNEY, N.S.W.

DIRECTORS :

Russell Barton, Esq., *Chairman.*
Bernard McBride, Esq. Hon. W. J. Trickett. Walter R. Hall, Esq.
John Pope, Esq.

FIRE INSURANCE of every description accepted at Lowest Rates.

The Policies cover all damage by Bush Fires, Lightning, and Gas Explosion, in addition to the ordinary risk by Fire, and the Profits are divided with those assured.

Personal Accident & Sickness Policies are issued, giving Increased Compensations at Lowest Rates.



EMPLOYERS' LIABILITY - -
WORKMEN'S COMPENSATION
ELEVATOR, LIFT, DRIVERS -
GENERAL PUBLIC RISKS - -

Employers are indemnified against Claims from Workmen and from "Third Parties" for which they are legally liable.

Plate-Glass Windows and Mirrors (with Writing, etc.) Insured against breakage.

Forms, Rates, etc., supplied upon application to the Head Office, or TO ANY of the Company's AGENTS.

KELSO KING, Manager.

120 Pitt Street, SYDNEY, N.S.W.

MORT'S DOCK

Fifty Years Ago, and To-day

The Brain Idea.

IN the early "50's" of the nineteenth century the trade of the Port of Sydney was practically the trade of Australia. The settlement on the shores of the harbor was still the greatest achievement in colonisation. Exploration and discovery had splendidly proceeded north and south and west, but commerce was centralised on the scene of Phillip's foundation. The volume of shipping had grown to what was then considered vast dimensions, and docking and engineering requirement was a problem that pressed for solution. The means available were so modest, primitive and make-shift as to be altogether inadequate, and great were the delays, inconveniences and losses sustained by oceanic, coastal and harbor shipping. These were increased



PAY DAY, HEADQUARTERS.

so rapidly and became so serious that owners and masters dreaded the disasters risked by trading with Sydney. The port was perfect as prepared by Nature; it lacked man's bold initiative and robust enterprise in the matter of docking accommodation and engineering facilities to supplement Nature's magnificent endowment of deep water and safe anchorage. The need was urgent. The scheme was the brain idea of a great citizen.

Mr. Mort to the Rescue.

It was THOMAS SUTCLIFFE MORT, Australia's most honored pioneer in manifold enterprises and industries of permanent utility and imperishable service to Sydney and to the entire Continent, who first recognised the necessity for docks

JAMES SANDY & CO.,

Oil & Color, Plate & Sheet Glass Merchants, & Paperhangings Depot.

Some of our SPECIAL LINES.

Wire Brushes and
Brooms for Cleaning Iron.

Port Light Glasses.

Bevelled Mirrors.

Picture Moulding. Brushware.

Artists' Requisites.

Linoleum Cream.

Walmer's Varnishes

— and —

Varnish Stains.



ESTABLISHED 1853.

Some of our SPECIAL LINES.

Ferol and Ferol Paints
for SHIPS' HULLS and HOLDS.

Antifouling Paints.

Boat Varnishes.

Special Paints for Iron.

SOLE AGENTS for

Noble's and Hoare's Cele-
brated Varnishes.

Fergusson's
Red and White Leads,
and White Zincs

(GUARANTEED PURE)

Standard Varnish Works
Varnishes.

326-328 George Street, SYDNEY.

Glass Department - ASH STREET.

Factory - BORONIA STREET, REDFERN.

and engineering works on a scale of magnitude and importance adequate for the then present and growing requirements of the port. His breadth of vision, business capacity and courageous spirit were associated with a noble patriotism and ardent love of and confidence in Australia, and so he determined to come to the rescue of the shipping and engineering difficulties, as he had come to the rescue of the great primary and other industries and commercial affairs of the Colonies. His name is indelibly written in the records of colonisation and achievement, and the statue in Macquarie Place, the historic site of Phillip's proclamation, is one of the many public tributes to his worth and work, of which not the least permanent and praiseworthy is the dock which has his honored name.

Foundation of Mort's Dock.

Once having determined on the establishment of the docking and other works required to meet the demands of the

shipping interests and other concerns, Mr. T. S. MORT set himself to the task with the vigor, insight, insistence, and enthusiasm which characterised all his undertakings. He was at once confronted with the magnitude of the outlay and the problems of site and construction. The cost would be

enormous, and there were no models for guidance. A blunder as to situation might prove disastrous, and an error in judgment in design and construction might mean an obsolete and valueless scheme from the outset. But he was happy in his choice of a little bay, at Balmain, and he was wise in securing the latest and most expert advice as to the character and capacity of the works. Operations were begun in 1854, at Waterview



MORT'S DOCK, WITH INTERMEDIATE CAISSON.

Bay, hard by the hamlet of Balmain. There he laid down the graving dock which bears his name, and will, doubtless, bear his name for all time.

The Infant Industry.

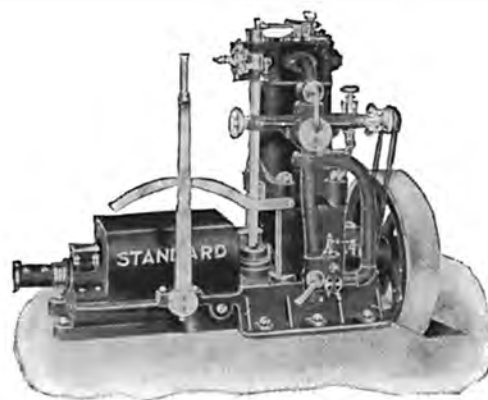
If the progress of the infant industry, destined to

Waugh & Josephson

BOILERMAKERS, DAIRY and REFRIGERATING ENGINEERS.

☞ **"Standard" Marine Oil Engines** are recognised as being the leading Motor on our market. We keep a large stock, from 4 h.p. upwards. The engines are designed and built by people who understand their business. The engines are built to stand any amount of hard work, and are so simple in construction anybody can work them. All fittings are nickel-plated. The **"Standard"** Engines are fully guaranteed to develop their rated horse-power. ☞ ☞

SOLE AUSTRALASIAN AGENTS for the
"Standard" Marine Oil Engines
for YACHTS, LAUNCHES
and WORKING BOATS



It is ABSOLUTELY SAFE, ALWAYS
READY and WILLING TO RUN, EASY
TO START, and KEEPS GOING. ☞ ☞

Simple in Design.
No Small Parts. ☞

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develop vast proportions, was possibly slow to the present point of view, in those far-off early years it was viewed as something phenomenal—as, indeed, it was. But all doubt and uncertainty about the commercial success of the venture were soon dispelled, and the infant industry entered on a vigorous growth.

In 1872, Mr. MORT, whose pioneering pluck had thus been triumphantly justified, resolved on still bolder enterprise, and formed the Company first bearing the name of Mort's Dock and Engineering Company, Limited, with a capital of £120,000 in £1 shares. With increasing trade and resultant demands on the capacity of the Dock and its workshops, the Company's capital was increased out of reserves to £150,000, and when, later, debenture funds

were raised for the purpose of expanding the works and plant, and introducing the latest accessories, the establishment grew enormously on the basis laid down by its confident founder.

The Onward March.

It was inevitable that the capacity of the Dock, works, and

plant should become overtaxed, and so the Company, in 1889, acquired the premises now known as its "Jubilee Dock" branch, and ten years later the Company was re-formed with a share capital of £200,000, and debenture capital of £150,000, making in all £350,000 as it now stands. The Woolwich Dock was then

constructed. Thus, by stages, which are historic in Australasian industrial history, the masterly conception, plan and project of Mr. MORT, ripened, grew, and flourished in its onward march, overcoming every difficulty, surmounting every obstacle, brilliantly justifying his enterprise. When, in the early "fifties," Mr. T. S. MORT initiated the industry with a dry Dock and a small engineering establishment, manned by less than 200 men, even he could



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scarce foresee a development which, to-day, represents one of the greatest industries in the Southern Hemisphere, comprising five docks, three patent slipways, three separate engineering establishments, and a salaries and wages list containing no fewer than 1,500 names. Such is the stirring story of about 50 years of enterprise and engineering progress and development.

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The Head Quarters.

Where once was a thinly-peopled hamlet amid the primeval ti-tree bush of Balmain, in the close vicinity of Waterview Bay, the site of the infant industry, an area studded with factories, warehouses, shops, handsome dwellings, fine villas, comfortable cottages, and teeming workmen's tenements now spreads about, or overlooks Mort's Bay, where the head-quarters of Mort's Dock and Engineering Company Ltd. occupies over 18 acres, the greatest hive of industry in Australasia. There is seen and heard the thousand and one activities of high production in vast proportions, ship building and repairing, foundries and machine manipulations, and all the varied, intricate and wonderful workings of the science, art, and practice of engineering, with the departments for designing, manufacturing, applying, testing, and completing every item, article, and necessity for the industrial and commercial success of the great establishment. Some idea of the capacity and industrial pos-

sibilities of the head-quarters establishment may be obtained from the fact that the original dry Dock is extended to more than twice its original size, now measuring 640 feet, with a draft of 19 ft. It is equipped with an intermediate caisson, and the most powerful and up-to-

date pumping plant with all accessories, the intermediate caisson permitting of the closing of one half of the Dock for carrying out extensive repairs, leaving the other half open for daily requirements. It is equal to the docking demands of most of the vessels entering Sydney Heads. There stand, in the pride of strength and stability, three patent slips, respectively of 2,000, 1,000 and 50 tons capacity, equipped with all the necessary



PATENT SLIPS, MORT'S BAY

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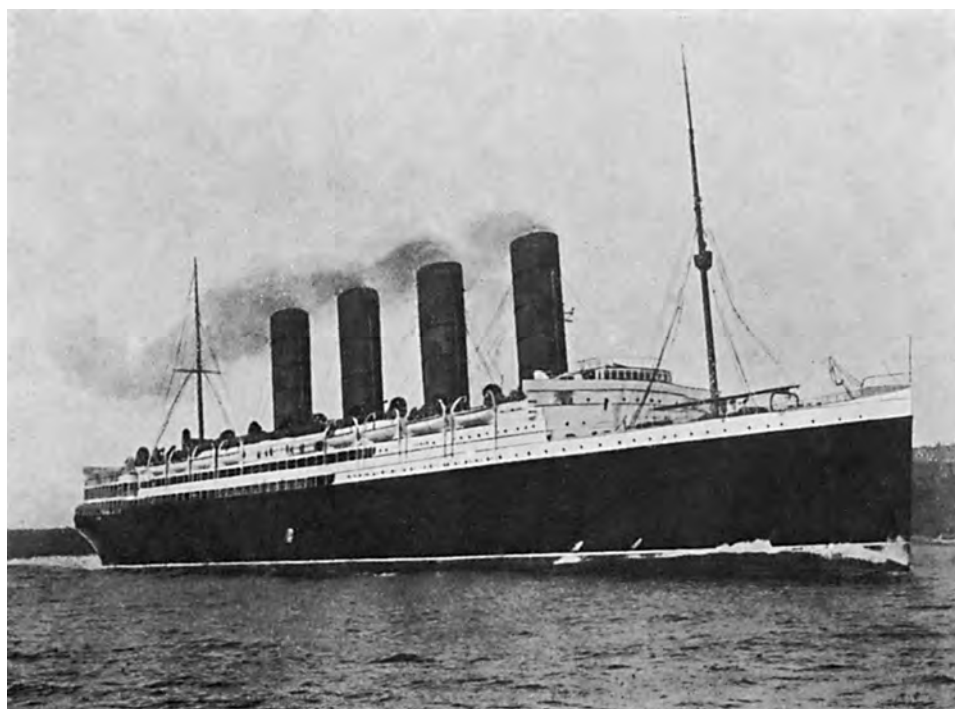
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making, iron, brass, and steel foundries, joiners' shops and saw mills, painters, and all allied labourers. And the visitors' eyes are opened to the wonderful precision in the working of every department. There is a place for every operation, great or small, and there is the touch of celerity and certainty in the performance of every duty. From the most highly skilled to the humblest labourer, all employed engage in their work with that easy confidence and ready effort which indicate perfect organisation and discipline. And every duty is more or less interdependent on one another, or others, like the mechanism of some fine piece of machinery. Also the visitors' ears are opened to the music of not one workshop, but many workshops, the roar of the rollers, the rhythmic motions of many engines, the sharp crackings of hammers, the clickings of tools of trade, the raspings of files, the mutterings of drills, and the indistinguishable babel of concentrated workmanship. Within this 18-acre area have been produced results of which industrial Australia is justifiably

proud. These should instil into Australians a firmer faith in the resources and future of their own land, and imbue them with the spirit of self-reliance and self-containment.

Glances at the Shops.

Each workshop has an interest and a story of its own, and must be dealt with separately.

The Engineering Department is provided with machine and fitting shops, replete with every requirement in machinery and appliances. There are some 50 lathes, the largest being capable of taking in work up to 27 feet diameter and 36 feet in length. Of the planing machines, one has a table 18 feet long and can work over a



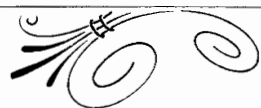
ANOTHER VIEW OF PATENT SLIPS.

breadth of 9 feet, and a height of 8 feet. There is a multiplicity of other machines for shaping, slotting, drilling, key-seating, screw-cutting, sawing, and other purposes. High-speed and electric and pneumatic appliances and cranes, lifting gear, and powerful overhead travellers are provided throughout.

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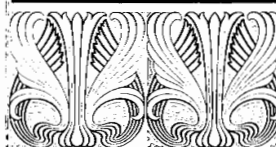
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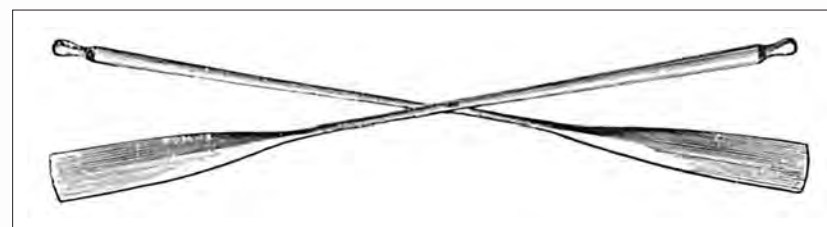
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The Patternmakers' Department is housed alongside the Machine Shop and Iron Foundry, and is fitted up with the most modern labor-saving machinery.

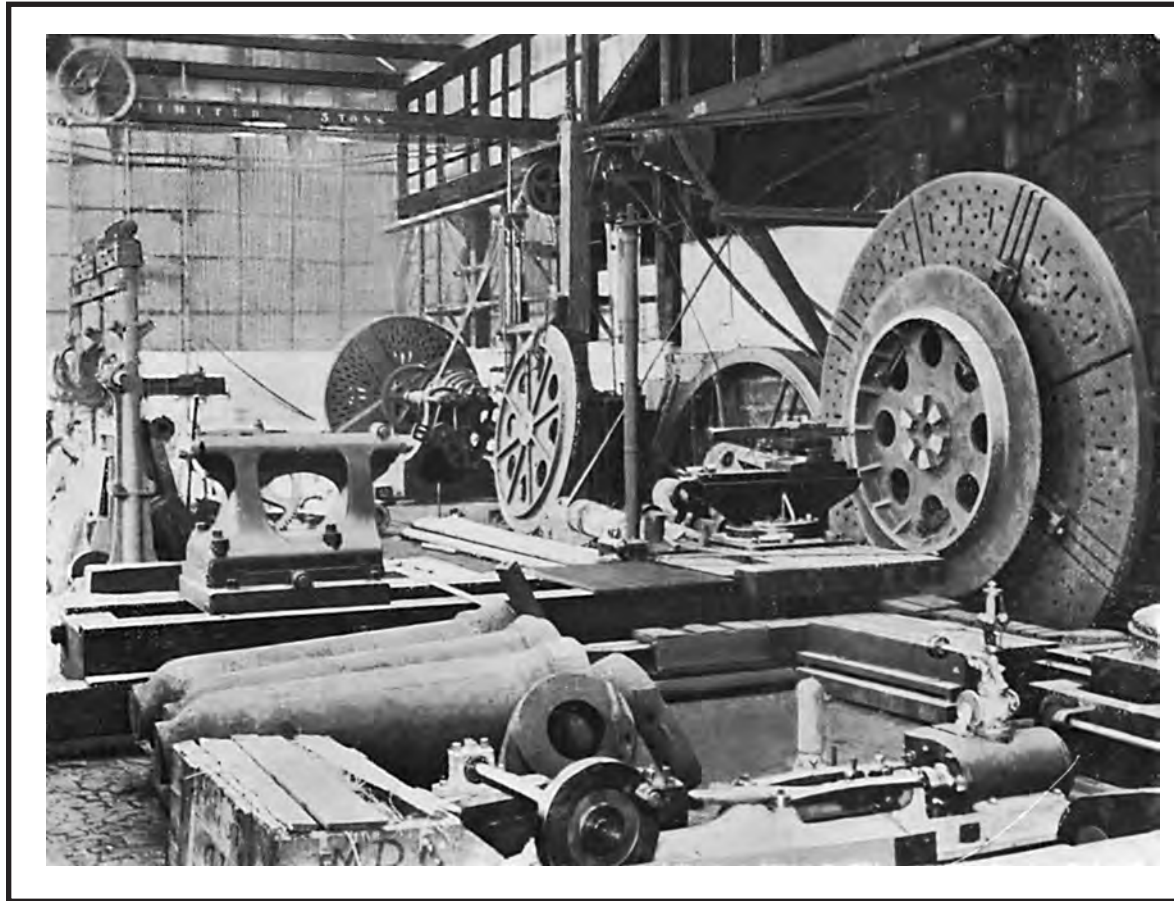
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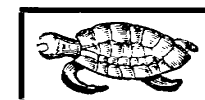
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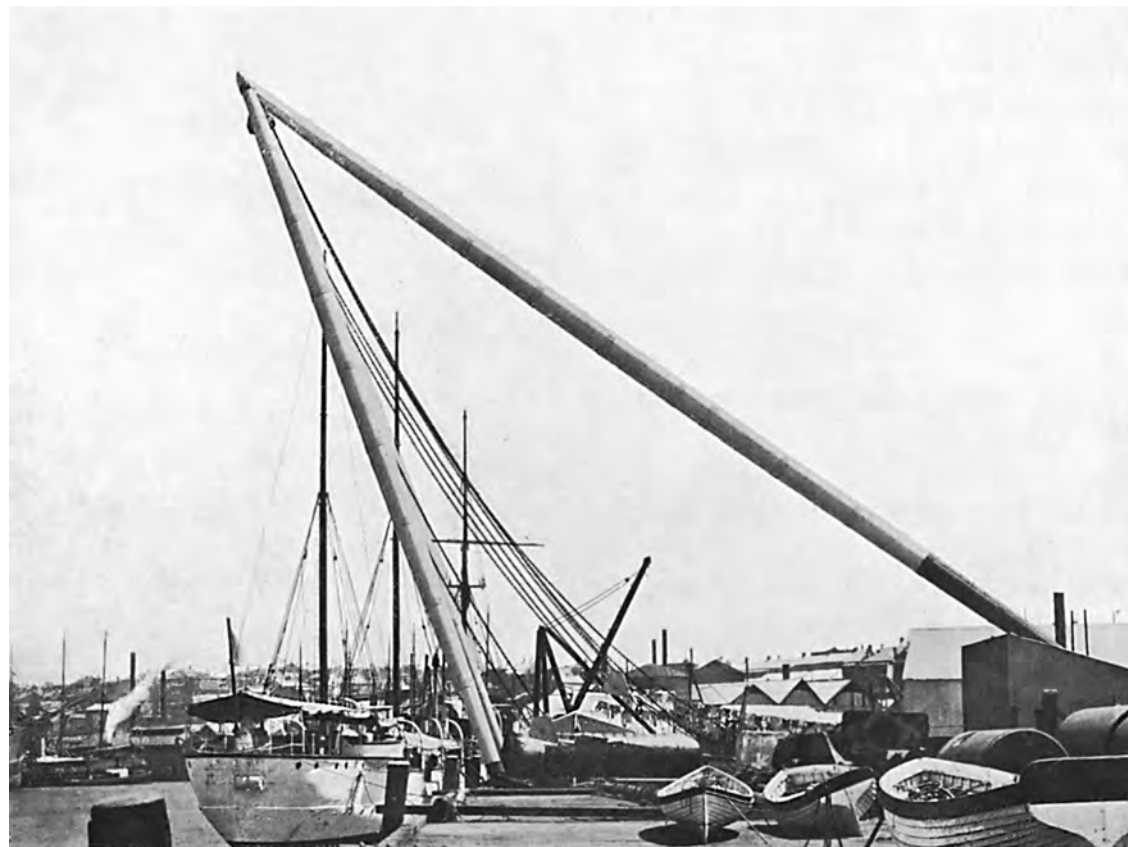
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In keeping with the equipment and general capacities of the workshops and departments are the provisions and conveniences essential to such a modern establishment. The whole of the works are fitted effectively with pneumatic electric power, electric light, gas, water and tramway and telephone services. Nothing is wanting in appliances for the handling of work with efficiency and dispatch. The Ambulance Room, too, is equipped with every requirement for prompt and effective aid.

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65-TON SHEER LEGS, MORT'S DOCK.

some thirty or forty vessels, including several Government pilot steamers, the "Governor Blackall" for the Queensland Government mail service, and the fastest and best of the popular Manly steamers of the Port Jackson Co-operative Company's fleet, as well as several well-known vessels trading on the coast of Australia. The Workshops supplied to the Government passenger and goods locomotives as far back as thirty years ago; and high-

class marine engines, wool-dumping and mining plant are constantly under construction. But notable as has been the record of the establishment, it is being easily eclipsed in the contracts and orders in hand. The future output will astonish the Commonwealth.

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Works at Woolwich.

Particular references have in the foregoing been confined to the Head Establishment at Mort's Bay. The exigencies of trade and custom and the pressure of demands rendered

imperative branch works. The Woolwich branch establishment occupies 20 acres in a magnificent position in the Harbour, opposite the Government Docks on Cockatoo Island. It has water frontage on two sides, in all 1989 feet, and is provided with handsome wharfage accommodation and means for berthing vessels. The Woolwich Dock is 675 feet in length, has an entrance 83 feet wide and a depth of water on sill of 28 feet 9 inches. It is pro-

vided with loco-cranes on tramlines on each side, a 15-ton steam crane at the entrance, electric capstans and all modern appliances. The pumping station is fitted with three sets of powerful centrifugal pumps capable of discharging over three millions of gallons of water per hour, and of emptying the dock in an hour and a half to two hours and a half. This

is one of the finest docks in the world, and, as it was constructed within the last six years, it may be regarded as entirely up-to-date in design and efficiency. The workshops at Woolwich are extensive, and fully equipped with steam, electric and pneumatic plant for all departments, including engineering,

boilermaking, shipbuilding, pattern-making, iron foundry and painting, etc. There is also the Motor Department, where the manufacture of the Company's celebrated "Invincible" land and marine motors and gas producer plant, etc., is carried on. On the foreshores, in a convenient position, is moored the Woolwich Pontoon Dock, and adjacent to the establishment, capable of lifting vessels up to 1,500 tons. From this



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The Triple Capacity of the Company.

With the Mort's Bay, Woolwich and Johnstone Bay resources, the Mort's

Dock and Engineering Company, Limited, may be said to have a triple capacity for every demand made. It is conservatively estimated that it is capable of dealing with nine vessels in docking and slipping at one time, as many more being berthed alongside the works, of simultaneously building half-a-dozen ships, as well as concurrently manufacturing all

classes of machinery and carrying out repairs. In the circumstances, its claim to be the largest and completest concern of its kind south of the Line will be readily conceded by all, and proudly proclaimed by every patriotic and true-born Australian. Indeed, there are world-travelled shipbuilding

experts who pronounce the equipment of the Company second to none anywhere. Surely this is justification, if justification were needed, of the early insight, bold conception and unshakable resolution of the illustrious founder, the all-time honored THOMAS SUTCLIFFE MORT. This realised aim and ambition will rank proudly with any of the momentous enterprises in Australia with which his name and his commercial and industrial



JUBILEE FLOATING DOCK.

genius are imperishably and indelibly associated and identified. Within the narrow period of half a century, the germ idea of his brain has grown—first, under his special solicitude, and, subsequently, under the fostering care of his successors—into its present gigantic proportions, and with a future assured of incalculable utility, scope and activity. In the ultimate

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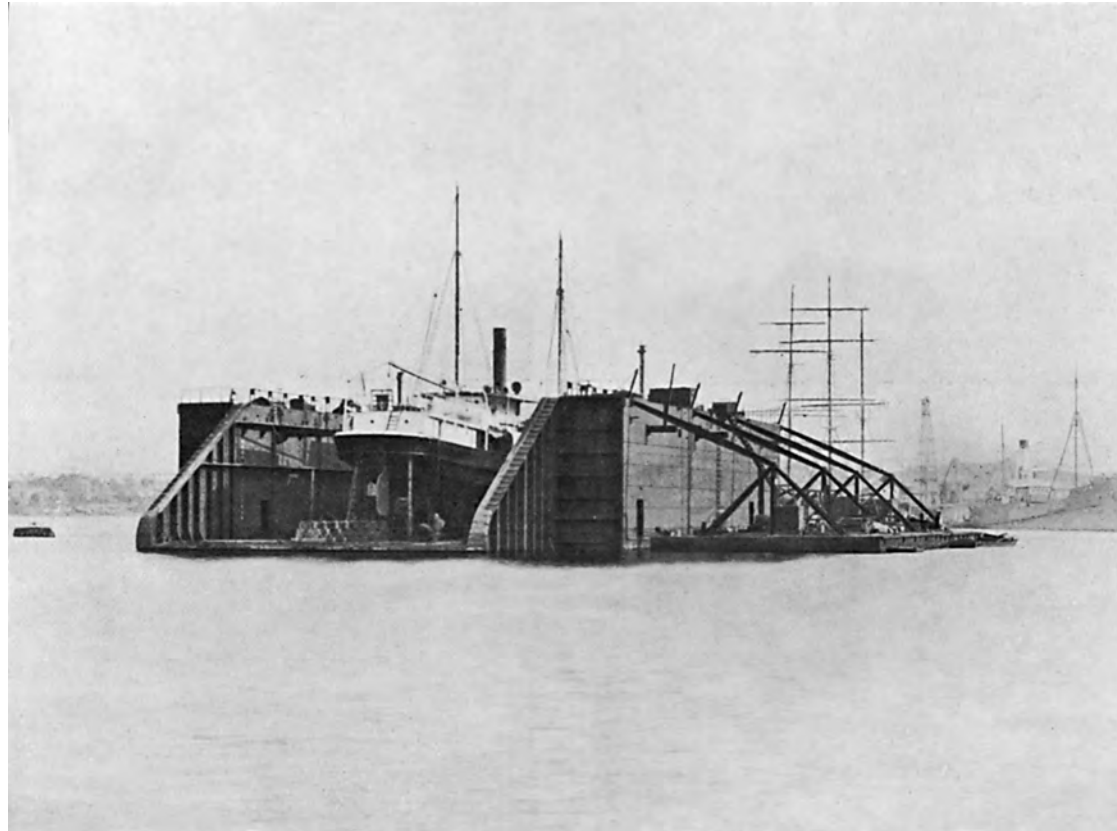
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Cable Address "SILVERGRAY."
Works SILVERTOWN, ESSEX.

279 George St., Sydney

accomplishment of Mr. T. S. MORT's aim and ambition, his son, the late Mr. LAIDLEY MORT, who for 25 years was Chairman of Directors of the Company, has rendered, and Mr. W. E. MORT and Mr. LESLEY HERRING, as Directors, and Mr. J. P. FRANKI, as Manager, have rendered long-sustained and distinguished services. The late Captain JOHN BROOMFIELD was long and honourably associated with the Company in the capacity of Director. Mr. KELSO KING and Mr. GEORGE MERIVALE are two Directors who have devoted and are still devoting valuable services to the success of the Company. "Mort's Dock" inspired, and inspires, confidence and appreciation wherever shipping extends in the waters of the world.

The very name stood, and stands, for ship-building, ship repairing, and engineering excellence and celerity. No wonder its story of enterprise, progress and development is as stirring as it is extraordinary; and no wonder its past phenomenal success and present impregnable strength point, thus

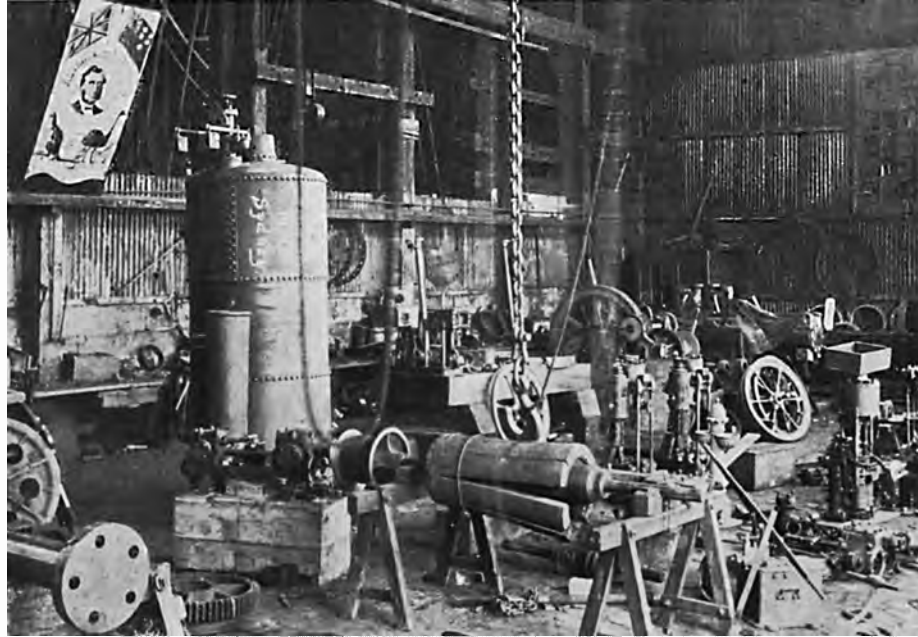
early in the first era of the Commonwealth, to an extension of trade demands and shipping and engineering activities which will put its incomparable equipment to continuous and strenuous test. In facing this, with perfect ease and facility, it will worthily respond to all that was confidently and enthusiastically anticipated of it by THOMAS SUTCLIFFE MORT.



PONTOON DOCK, WOOLWICH.



INTERIOR VIEWS OF MORT'S DOCK WORKS.



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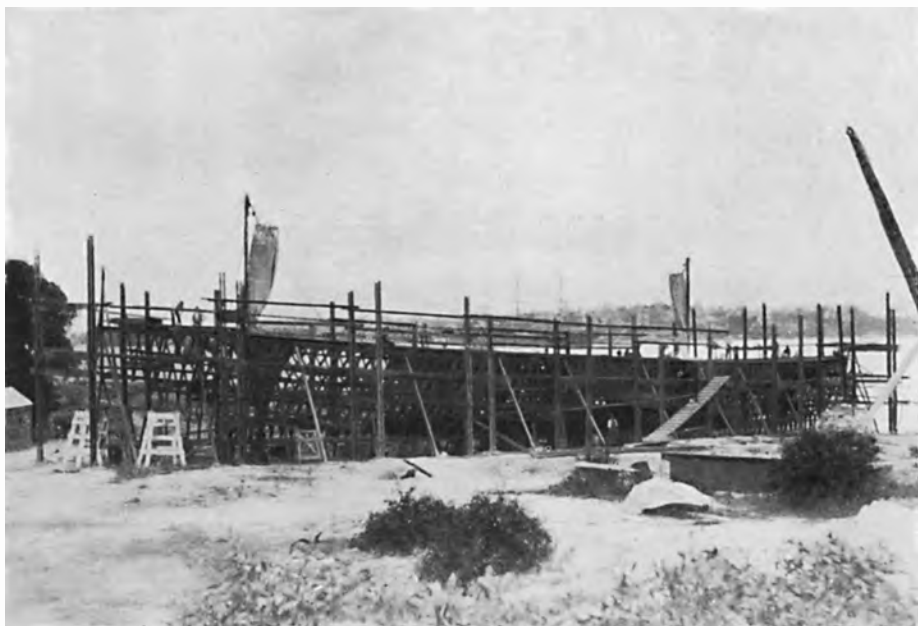
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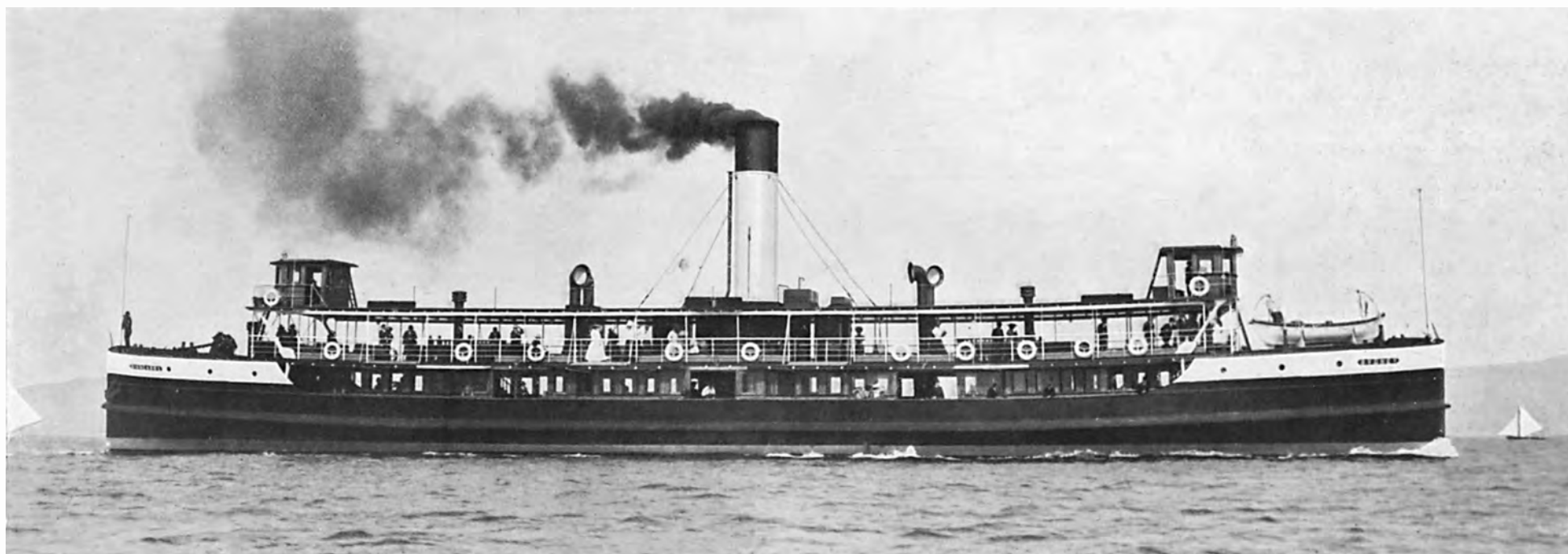
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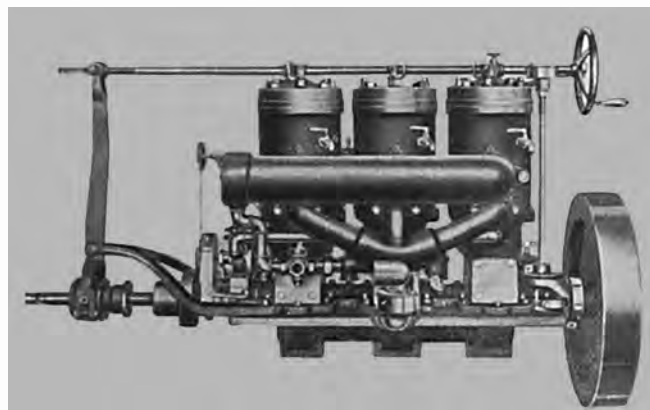
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THE WOOLWICH DOCK

A BIG ENTERPRISE. ITS FIRST SHIP.

(Abridged from the "Australian Star," December 4, 1901).

OWING to the rapid increase during recent years in the numbers and tonnage of vessels visiting Port Jackson, and to the likelihood of further increases, the Directors of Mort's Dock and Engineering Co., Limited, with a view to the future, as well as the present requirements of the port for docking and repairing vessels, decided some three years ago to construct a graving dock of such dimensions as

would accommodate the largest vessels likely to visit these waters for many years to come. After due consideration as to the most suitable site, it was decided to construct the dock at Woolwich, at the junction of the Parramatta and Lane Cove Rivers, where there is plenty of deep water, and where ample accommodation can be provided for berthing of vessels.



THE FIRST SHIP (THE NEOTSFIELD).

Like most of the land round the foreshores of Port Jackson, the ground at the site fixed upon rises rapidly from the water, and this had to be levelled off before the excavations for the actual dock could be started. Operations for levelling off were begun in August, 1898, and the magnitude of this portion of the work can be gauged when it is stated that about 73,850 cubic yards (124,620 tons) of sandstone had to be removed to reach the cope level for 560

feet length of dock, and a further 71,330 cubic yards (120,370 tons) will have to be removed for the complete length of the dock to 760 feet. The work of quarrying out the dock proper was begun on March 1, 1899, and the stone proved to be of such good quality, and so comparatively free from faults, that very little cutting out

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Subscribed Capital, £179,986.

33 STEAMERS—Licensed Carrying Capacity, 16,000 Passengers.

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P. T. TAYLOR, Esq.

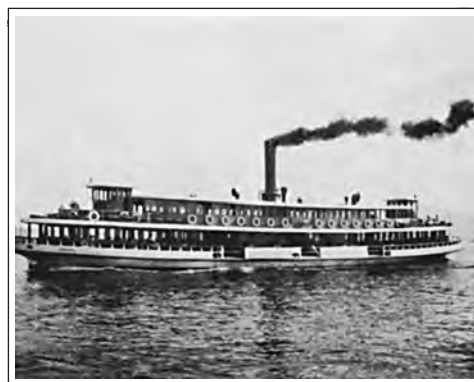
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Manager—W. G. TODD. Works Manager—T. BROWN.

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Afternoon Trip, 2.30 p.m. to 5 p.m. Adults, 1/-; Children 6d.

Luncheon—Adults, 1'6; Children, 1'-.

and making good where defective on the sides was required.

The Excavated Stone

was used for several purposes, including the construction of the pier heads, forming the entrance to the dock, which it may here be stated extend 24 feet beyond the caisson fit, and are 32 feet wide. The stone was also used for the construction of a sea wall round the reclaimed ground, a large portion of the excavations being utilised for reclamation purposes. The following are the principal dimensions and general description of the dock :— Length of dock on floor when completed, 765 feet; length now completed, 675 feet; width of dock at cope level, 100 feet; width of dock on floor, 75 feet; width at entrance, 83 feet; depth of sill below cope level, 35 feet; depth of water, h.w.s. tides, 28 feet 9 inches; depth of water, l.w.s. tides, 23 feet. The dock floor is composed of blue metal concrete of a minimum thickness of 12 inches, with camber and a fall

of 9 inches from centre to each side, a gutter of ample depth and width being formed along each side of dock, and across front of apron for drainage. On each side of dock there are

six altars for shoring purposes, and slides are provided on each side for lowering shoring blocks, etc., to bottom of dock. The bottom of the dock is reached by three flights of steps of easy grade and ample width. The outer caisson quoin is of Harcourt granite, and a second caisson quoin is provided for at 404 feet from the outer one; this will allow of the upper portion of dock being shut off from the lower portion, which is a very essential feature when it is necessary to carry out extensive and lengthy repairs on a vessel. The vessel can be shut off in the upper portion of dock while the lower portion is available for ordinary docking work.



ENTERING THE DOCK.

For Flooding the Dock

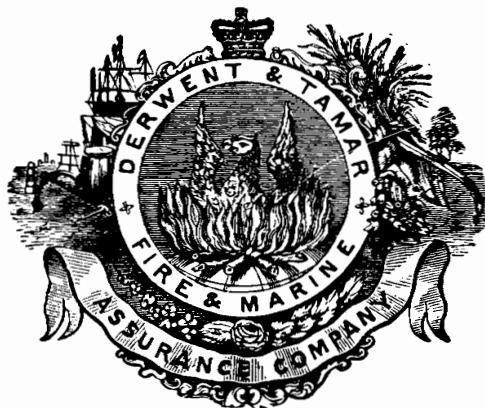
there is a culvert in each pier head fitted with penstocks, controlled by hydraulic ram for opening and closing. The

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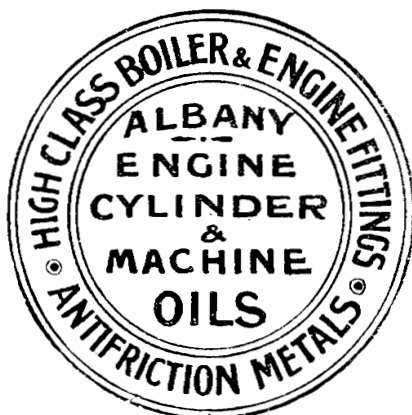
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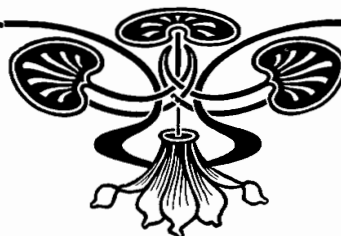
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caisson is of the floating type, constructed of steel and designed to raise and lower automatically at any state of the tide. The caisson is 35 feet deep by 20 feet maximum beam. The facings, where abutting on the quoin, are of jarroo wood. For the emptying of dock there are three sets of powerful centrifugal pumps, each set coupled direct to a vertical tandem compound surface condensing engine, having cylinders 15 inches and 27 inches diameter, with a stroke of 20 inches. The discharge pipe from each pump is 33 inches diameter, and the three pumps together are capable of discharging 3,136,000 gallons of water per hour. These pumps can either be worked separately or coupled. In addition to the main pumps there is a 10 inch centrifugal pump for drainage purposes. One separate surface condenser is provided, which is common to the three engines, the circulating pump being an independent centrifugal pump, and the air pumps are of the single-acting, double-barrel type, driven off the cross-head of circulating pump engine. The necessary steam for main and auxiliary pumps is supplied by two large return

tubular marine boilers working at 100 lb. pressure. All the pumping machinery and boilers are housed in a substantial brick building, with tiled roof. The length of building is 96

feet 6 inches, and width 35 feet. The floor of engine room proper is 52 feet long by 26 feet wide, and is 32 feet 6 inches below cope level.

For Lifting and Hauling

purposes the dock is well supplied with the necessary appliances, which include a 15-ton electric derrick crane for lifting propellers and other heavy weights, and landing same on truck for conveyance to workshops or into a punt for conveyance by water. Also electric capstans for hauling vessels in and out of dock. Steam travelling cranes at each side of the dock are also being supplied for the purpose of handling shores and other weights up to four tons. The entire designs for the new graving dock and preparation of the plans for all the work in connection with



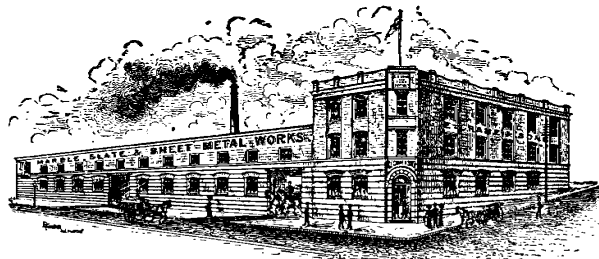
THE NEOTSFIELD IN DOCK.

same were executed by the Mort's Dock and Engineering Company's staff, and three-fourths of the construction of dock

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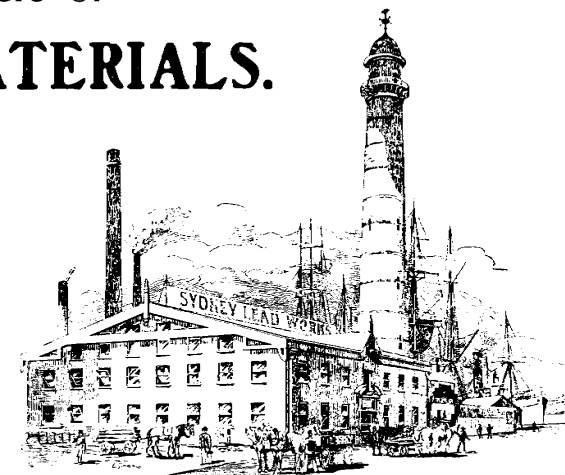
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Secretary: F. HANDLEY.

Assets, 31st December, 1907, exceed	£800,000
Premium Income exceeds	£449,000
Claims Paid exceed	£1,600,000

GUARANTEE DEPARTMENT.—The Company undertakes Fidelity Guarantees of all descriptions.

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SYDNEY.

was carried out by the firm by day labour, and since the commencement of work by them has been completed in $17\frac{1}{2}$ months. It will also be interesting to know that the coal used for pumping out the dock when the first vessel was floated in was supplied from the new Sydney Harbour Colliery, situated at Balmain. In addition to the graving dock already described,

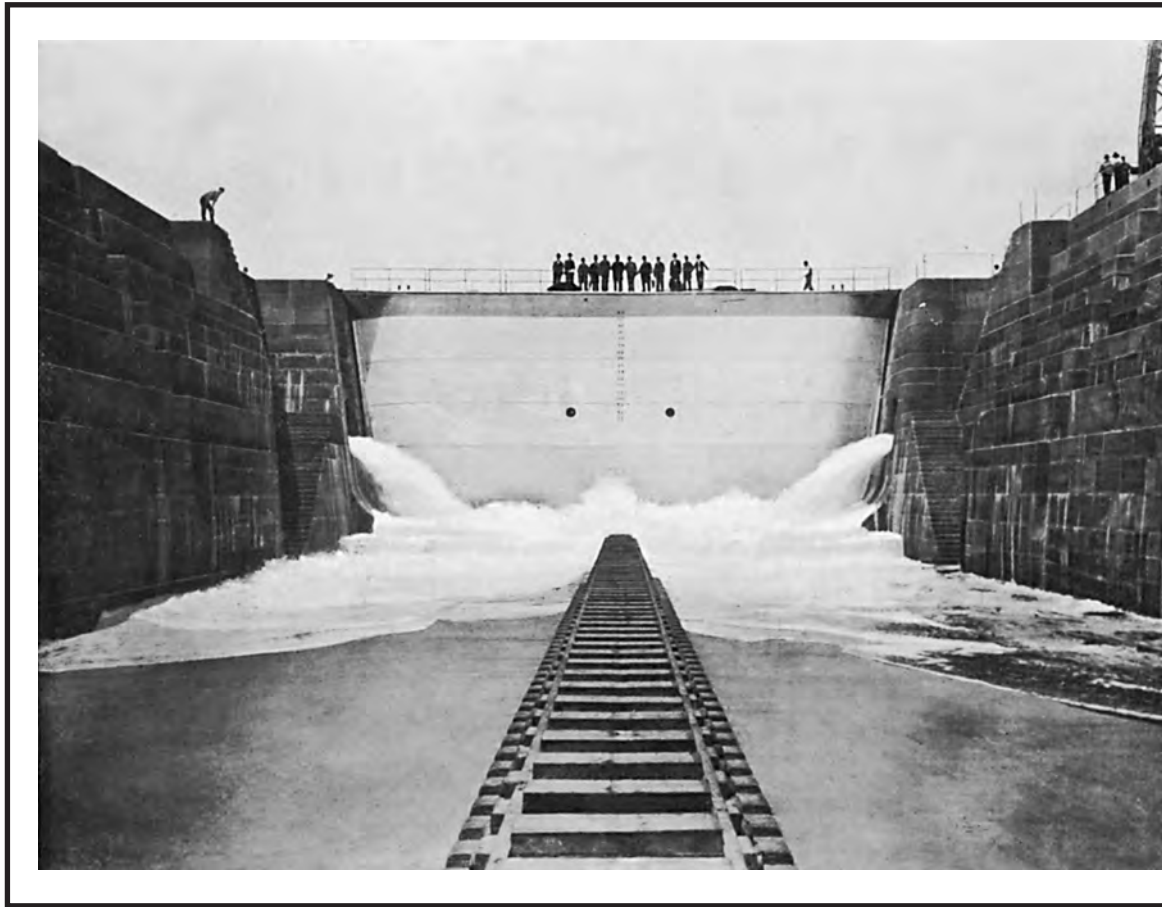
The Docking Accommodation

at Woolwich is further increased by an iron floating dock, which has just been reconstructed and thoroughly overhauled. Originally the dock was of the depositing type, having one side or wall only, with 12 extended arms or pontoons, on which the vessel was carried;

this dock has been converted into a two-sided or double walled dock, and though in no way diminishing the capacity has very materially improved the manipulation of the dock for raising and lowering vessels, and made it a much more reliable and safer dock than when in its original state. The dock as now constructed is capable of taking vessels up to 1,500 tons, and is so

placed that vessels can with ease enter or leave from either end, and can be docked and raised in less than one hour. That the requirements of the shipping visiting these waters have been studied by the directors of this firm, and can be met by their establishments for some time to come, it may here be stated that

now they are in a position with docks and slips to deal with a total tonnage of 26,000 tons at one time, or 10 separate vessels can be docked in one day, for in addition to the two docks at Woolwich there is at their works in Mort's Bay a graving dock, 640 feet long, and three slips of 2,000, 1,000, and 50 tons capacity, and in Johnstone's Bay there are two floating docks of a capacity of 1,500 and 100 tons respectively, known as the Jubilee Docks.



FLOODING THE DOCK.

At any and all of these docks or slips

Extensive Repairs

can be carried out on any vessel, either to hull or machinery, as they are all provided with the necessary appliances, and are connected with large establishments fitted out with modern

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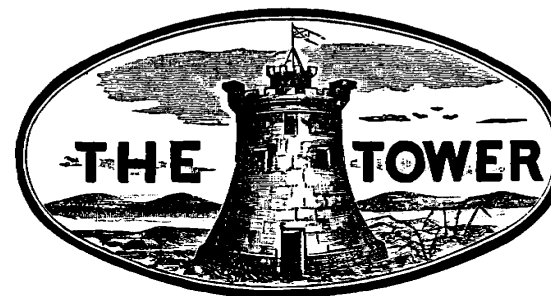
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machinery capable of dealing with any part of the largest vessel that visits the port, either in the nature of a repair or the making of any parts entirely new. The firm have always on hand a large and varied stock of ship and boiler plates, both in steel and iron, and are also large importers of steel blooms up to 20 tons weight,

for the forging of shafts of all sizes and descriptions. In the forge there are no less than 7 steam hammers; of these the two largest are 20 and 30 tons respectively, and from which have been turned out several large stern frames, stems, and shafts for some of the largest vessels visiting this port; while for general ship work, both new and repairs, the blacksmith's shop is well fitted out. The boiler shops are well equipped with all classes of boiler-making and shipbuilding tools, including pneumatic tools, hydraulic rivetters, presses, and flanging machines, large plate rollers and large plate and angle iron furnaces.

For Foundry Work

either in iron, steel, or brass, and other metals, the appliances are up-to-date, including powerful steam cranes, and a 20-ton steam

travelling crane, and it may be here stated that a single casting of an entablature frame, weighing 18 tons, has been turned out from one of the foundries, also numerous propellers up to 18 feet in diameter, and weighing 10 tons, but with the appliances at their command more complicated and heavier castings than this



ANOTHER VIEW OF THE DOCK.

can be turned out when occasion requires. The machine shops are well furnished with all classes of lathes, planing, shaping and drilling machines for turning out a large and varied amount of work. Included among the foregoing are a large lathe, with 14 feet face plate capable of turning a 22 feet fly wheel, and a large planing machine, capable of taking in anything up to 20 feet long, 8 feet wide, and 8 feet deep, and planing three sides at one operation. In the

Coppersmiths' Department

all the appliances necessary for the making and bending of copper pipes, up to the largest sizes, are fitted; also tools for tinsmith and sheet-iron work, including the making of large ships' ventilators. The joinery department is capable of dealing with a large and varied amount of work, being commodious, and fitted with

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"RED THREAD" WIRE ROPE.

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The Burnhope and South Pontop Collieries, County Durham, have had Three SMITH'S Ropes on their incline bank at Burnhope in 20 years. The last Rope lowered down 920,057 ton and hauled up 1,790,114 tons. These Ropes were not low priced, but the Colliery proprietors know they are cheap.

Are Smith's RED THREAD Ropes the Safest Ropes ?

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Every coil of Wire Rope which leaves THOS. & WM. SMITH'S WORKS contains a **Red Thread** running through the hemp heart, as a means of identification. In cases where the Ropes are made with Hemp Cores in the strands, each of these cores also contains a **Red Thread**—This is a registered Trade Mark.

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modern wood-working machinery, also saw mills attached to joinery. These establishments all have water frontages, with ample wharfage and berthing accommodation, and for lifting appliances the various wharves are well equipped, cranes being placed at all convenient positions for heavy lifts, such as boilers, engines, ships' masts, &c. There are steam shearlegs capable of lifting up to 70 tons weight. It is very gratifying to be able to state that during the whole of the excavations for levelling off, and the construction of the new dock, and pumping-chamber, there has not been one single fatality.

The Formal Opening.

The formal opening of Mort's Dock and Engineering Co.'s new Dock at Lane Cove River, known as the Woolwich Dock, took place on December 4th, 1901. Among those present were Messrs. Laidley Mort (Chairman), Kelso King, W. E. Mort, L. Herring, W. D. Cruickshank (late Government Engineer), J. C. L. Rea (Sydney Harbour Collieries), R. Pollock (Lloyd's Surveyor), J. P. Franki (manager), Captain Broomfield, and others. The first ship to enter the dock was the Neotsfield, a sailing vessel of 1820 tons, built in 1889, at Dumbarton, under the personal supervision of Captain J. B. Rugg, and owned and registered in Sydney by Mr. F. H. Dangar. The Neotsfield entered the dock under the charge of Captain J. T. Thomson, pilot, at 7 a.m., and in half an hour was safely secured. The pumping gear, which is capable of lowering 15 feet an hour, was speedily at work, and a gang of men started immediately to clean the hull.

After the works had been inspected an adjournment was made to temporary offices, and success to the Mort's Dock and Engineering Co. for their establishment of the dock was proposed by Captain J. B. Rugg, of the Neotsfield, who considered he was flattered by being the master of the first ship that had entered the dock. He had an experience of 30 years at sea, and had visited all the principal ports in the world, and considered that there was not a finer dock in the world than the Woolwich, as the approach was easy and vessels could be docked in any weather.

The toast was received with enthusiasm, and Mr. Laidley Mort, chairman of the Company, returned thanks, and stated that the opening was a purely informal matter. He considered that the establishment of this new dock, which would enable the largest ship in the world to be docked, would be a great element in the future prosperity of the port, and he trusted that Mort's Dock Co. would receive increased support from shipping, as they were now able, with the opening of the Woolwich dock, to double their docking accommodation. It was a pleasure for him to state that the first ship to enter the dock was a Sydney-owned one, and the coal used for pumping the dock was raised by the Sydney Harbour Collieries' Company at Balmain, and had proved excellent steaming coal.

Mr. Kelso King, director, proposed the health of Captain Rugg, coupled with the name of Mr. Sevier (who represented the owner, Mr. Dangar), which was briefly responded to, Mr. Sevier stating that it was always the rule of the firm he represented to advise shipowners to dock their vessels at Sydney.

Cheers were given for Mr. J. P. Franki (manager), and for the success of the dock, and those present expressed themselves well pleased with the opportunity of being present to celebrate such an important event.

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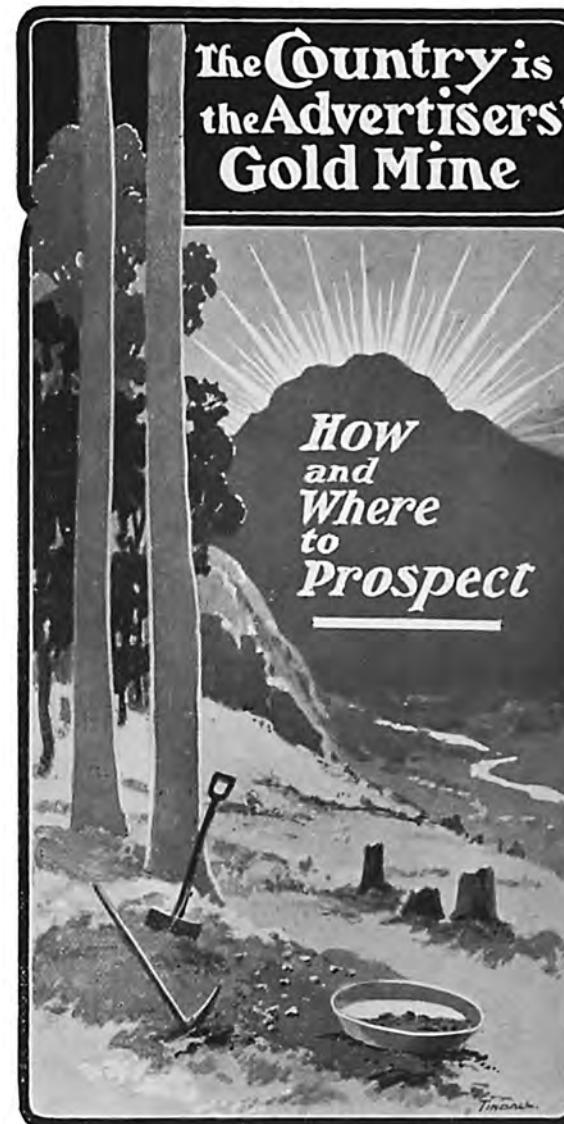
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T. M. Shakespeare,

Manager.

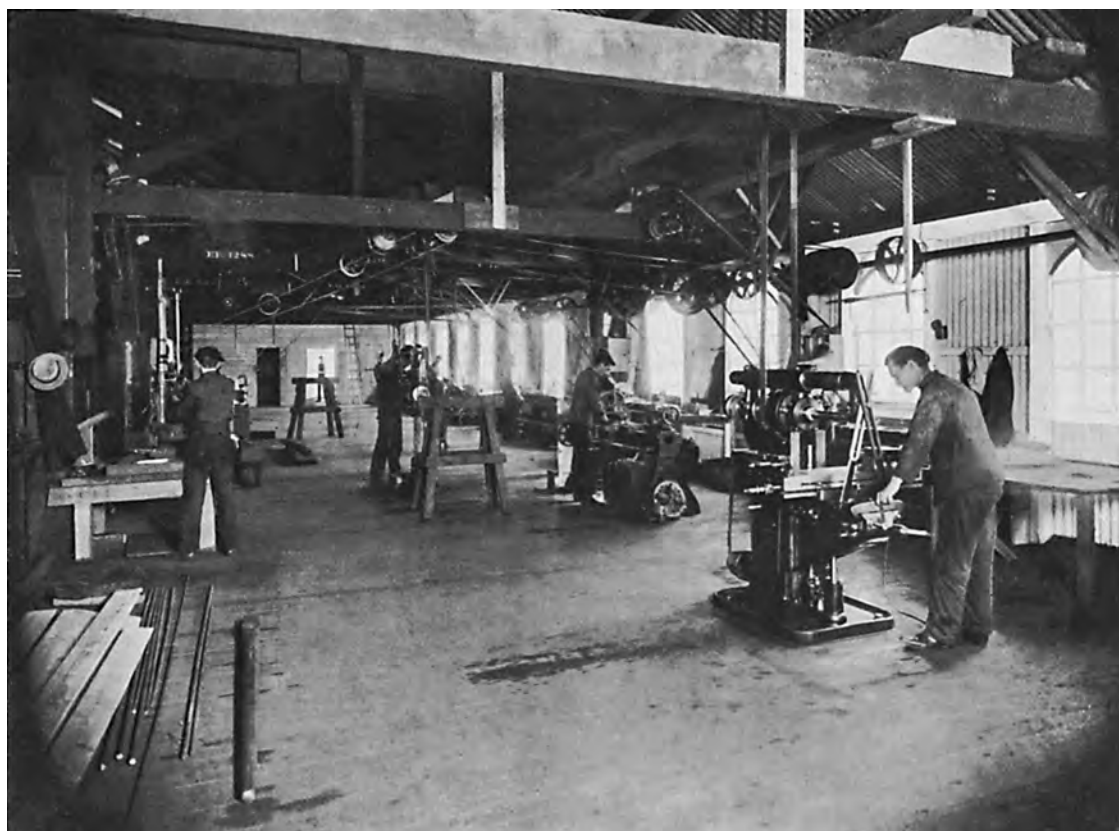
The Internal Combustion Engine

Or OIL ENGINE
and MOTOR

THAT this type of engine has come to stay and supersede the steam engine, is now an established fact. In the initial stages of the oil engine, like in the initial stages of all machinery, a considerable amount of trouble was encountered, more especially with the ignition and vaporization of the fuel.

There are two types of oil engines, viz., two-cycle and four-cycle, the first type having an explosion on the piston every revolution, and the second and more reliable type, an explosion every other revolution. These types are so well known that it is unnecessary with the limited space available to explain them in detail.

The first two-cycle engine in Australia was imported from America, and proved most unreliable, as a result of a



MACHINE SHOP, MOTOR DEPARTMENT.

few months' trial with same, and convinced the importers that few would be sold in Australia unless a more reliable machine could be obtained.

The four-cycle, however, gave more encouraging results, and made fairly good progress. The American manufacturer used every effort to improve his engine, with the result that in a few years the four-cycle engine was firmly established, and about a hundred factories in America started to

manufacture both types. (90 % of the oil engines in the Commonwealth were imported from them.)

The large demand for this class of machine, and the encouragement to improve them, has resulted in very satisfactory improvements in both types. Consequently we, to-day, have in Australia a two-cycle as well as four-cycle oil engine, the first

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being equally reliable, if not so durable, as the second. The remarkable success of these American and English firms encouraged many small firms in starting to make the engines in Australia. The imported motor, however, had in the meantime secured such a standing that these firms were unable to stem the current of foreign manufacture, until the past two years, when the industry was taken up by Mort's Dock and Engineering Co., Ltd., and they have placed on the market the "Invincible," one of the finest motors seen in Australia, giving the imported motor a decided check, and it is only reasonable to believe that when this large firm have had the business in hand a few years Australia will have no occasion to purchase American or other foreign make of engine or motor.

That this firm are doing the thing properly is easily seen by a visit to their Woolwich works. No expense has been spared to make it a success. The firm have engines of their own manufacture running in all the States of the Commonwealth and New Zealand, and are working under high pressure to get ahead of

orders. (The "INVINCIBLE" motor was the first motor to drive a launch over 20 miles an hour in Australia.)

The most up-to-date labor-saving machinery is daily being got together, and should the present satisfactory results continue, it is proposed to entirely remodel this department of their works,

and build the most complete motor and oil engine factory money can buy. No expense will be spared, and the purchaser will note a marked difference in price, as the result of unlimited use of modern high-speed tools. The small marine motor should be within the reach of all, with our delightful water resorts and climate, and for the farmers the power-driven chaff-cutter, saw, thrashers, etc., means wealth.

If Australians will support the manufacturer in their own

country, the day is not far off when power users will be able to secure oil and gas engines at prices that will enable the small man to double his output and profits; apart from the fact that in purchasing a machine made in the State he is always in touch with SPARE GEAR AND EXPERT ADVICE.

The "INVINCIBLE" motor department of Mort's Dock



MOTOR DEPARTMENT WORKSHOP.

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The total amount at credit of Depositors on 31st December, 1907 £6,401,662 2 3

TOTAL RESERVES - - £355,217 18 7

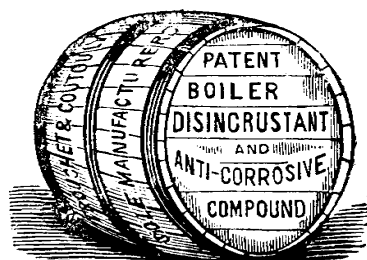
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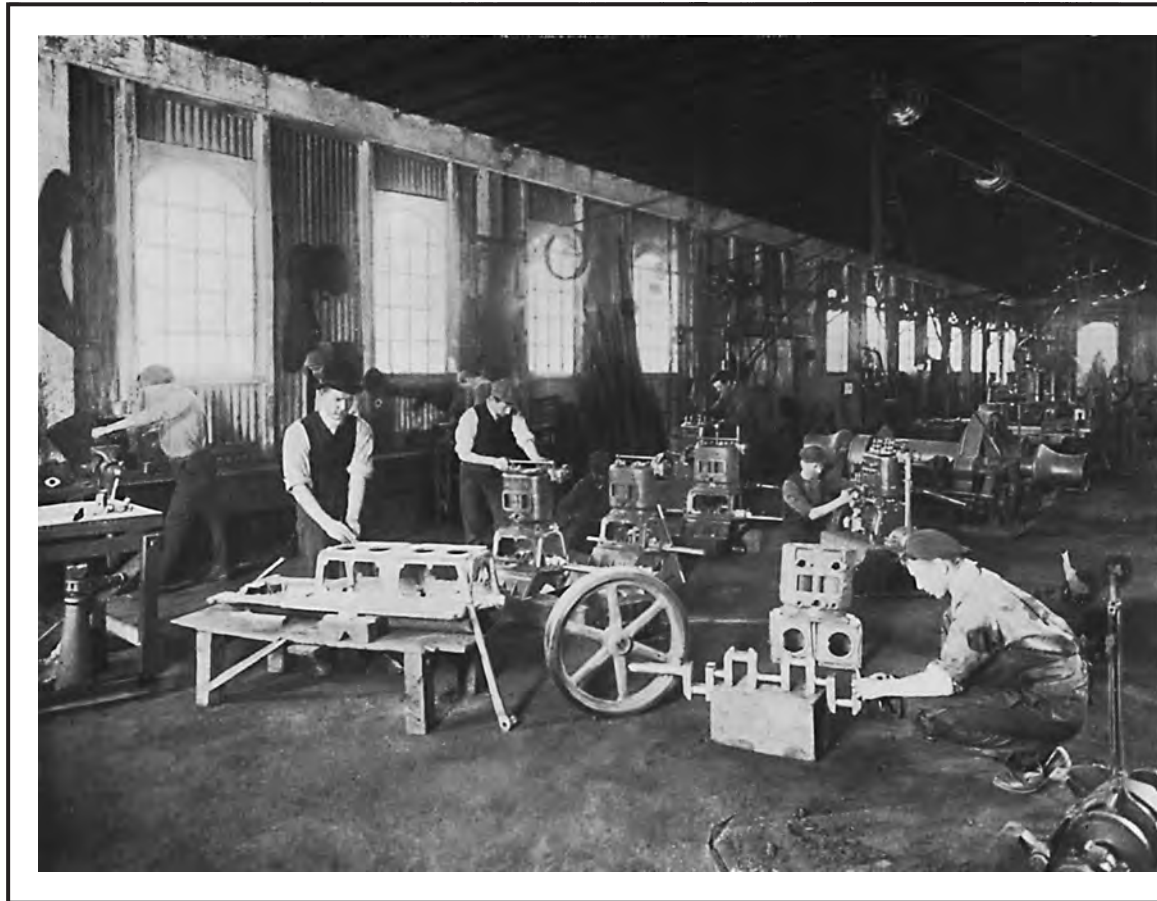
Telephone 2774. Cable-BITURINE. Code-ABC 5th Edition.

publish a very complete descriptive Catalogue and Price List, also booklet on "suction gas," the most economical power known. For this class of machinery, powers over 10-h.p. are most economical, and 10 to 15-h.p. can be obtained at a cost of 1d. per hour on common coke.

For land and marine purposes these engines are now generally in use, and the "INVINCIBLE" motor department have a 25-30-h.p. marine type now being installed in a large lighter with a view to demonstrating the utility of suction gas afloat.

When visiting Woolwich the busy and systematic arrangement of the works immediately calls for attention. The machine shop is 125 ft. x 90 ft. Starting with the pattern shop, a finely equipped shop 125 ft. x 25 ft., taking up the left hand gallery, where about 17 hands are hard at work; from the pattern shop the patterns are sent to Mort's Dock foundry, and the castings made there, and returned to Woolwich, where they are immediately checked, weighed, and put into a special store; they are handed out in lots and re-weighed, passing down to large or small lathes,

etc., as required. Parts are machined in this way in large quantities, each man becoming proficient in one special part; they are also machined to gauge, and then returned to store. When required, same are passed out to the fitting shop for the motors being erected.



FITTING SHOP, MOTOR DEPARTMENT.

On the right hand a gallery 125 ft. x 25 ft. is reserved for milling machines and brass finishing, the lower floor of shop being reserved for the large lathes, planing and boring machines, etc., about 70 x 25 ft. remaining for erecting shop.

From the erecting shop the motor is passed to a specially-constructed motor-testing room fitted with latest dynamometers for ascertaining the accurate h.p. of each motor.

The motor is retained

in the testing room until all bearings are running smoothly and cool, and then painted and sent out to purchaser, or stock store. The department has been so busy that up to date nearly every motor has been sent straight to the purchaser—the demand has been greater than the output of the plant. As a consequence the Company contemplates taking immediate steps

to put down a plant equal to keeping a large stock always on hand to enable intending purchasers to see and select their own motors for immediate delivery.

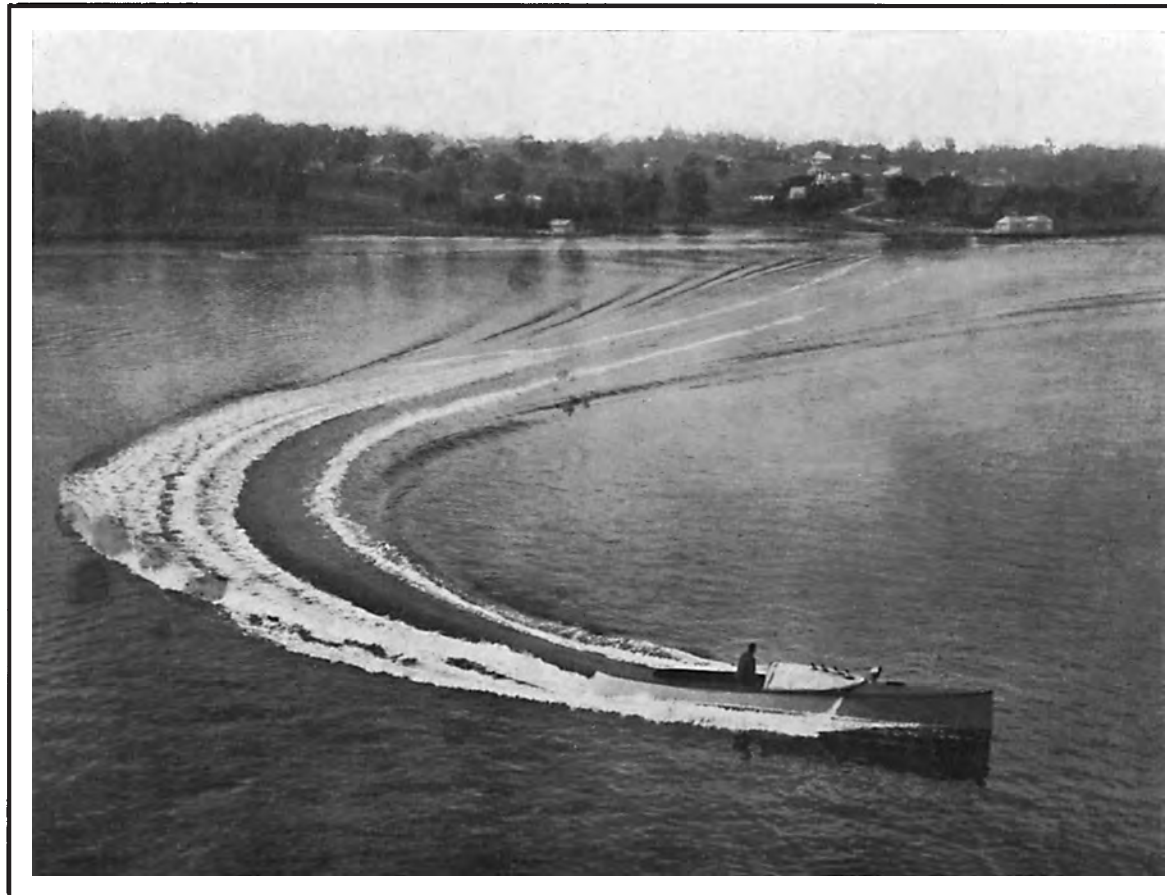
It will be noted that motors from 1½-h.p. upwards are made, and for all purposes.

That speed launches are a speciality.

That suction gas engines for marine and land purposes can be seen working and under construction.

That complete launches may be arranged for.

And finally that inspection of works and show rooms is cordially invited.



CROISER " INVINCIBLE " AT FULL SPEED.

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