9TH JULY, 1908.

THE QUAYS, WHARVES, AND SHIPPING OF PORT JACKSON.

PAST, PRESENT, AND PROSPECTIVE.

By NORMAN SELFE, Memb. Inst. C.E.
(Past President.)

EARLY HISTORY.

The scenic beauty of the Port of Sydney seems to afford to "all and sundry" a theme for unstinted praise; at the same time, the platitudes often uttered with regard to "Our beautiful Harbour," are occasionally tiresome. The world-wide reputation which the attributes of Port Jackson have achieved was, we know, originated by Governor Phillip, because in his official despatch to Lord Sydney, of May, 1788, the following passage occurs with reference to the arrival of the "First Fleet" round from Botany Bay, on the 26th January, 1788:—"We got into Port Jackson early in the afternoon, and had the satisfaction of finding 'The finest harbour in the World,' in which a thousand sail of the line may ride in the most perfect security." Now it is generally understood, that only those persons who have seen the harbour of Rio Janiero, will be prepared to dispute the first opinion which is there expressed; and inasmuch as the whole eleven vessels of his fleet—frigates, convoys, and store-ships—aggregated at the most 3822 tons—or an average of 367½ tons each, our first Governor, in guaging the capacity of the harbour by a thousand ships of his own day, may fairly be exonerated from the guilt of wilful exaggeration. Nothing perhaps would bring more forcibly before one the enormous increase that has taken place in the size of ships, during the 120 years that have elapsed since Phillip's despatch was written, than an attempt to find room for a thousand present-day "Liners" to ride in Port Jackson, whether they were great ships of war, or mammoth liners of the mercantile

marine. Measured by such modern monsters, the waters of our harbour are much more circumscribed than they appeared to the eyes of those first arrivals after their eight months' passage from the Motherbank. In the same despatch to the Home Authorities, Governor Phillip wrote further, as follows:—"I fixed on the Cove that had the best spring of water, and in which the ships can anchor so close to the shores that at a very small expense Quays may be made at which the largest ships may unload." And he added, "This Cove which I honoured with the name of Sydney, is about a quarter of a mile across the entrance." Now these two statements call for special remark:—Firstly, because from the time they were written, nearly half a century elapsed before the making of Quays was seriously attempted at all, and then the provision was not for the largest ships, but for what would now rank as very small ones; Secondly, because it is remarkable that it was the Cove that was named Sydney, and not the town. It does not appear as a matter of historic fact that Sydney—as a town—has yet ever been officially named at all, but that it simply took its title from the Cove upon which it was founded. It was certainly originally intended to call it "Albion." There were some good reasons of course why the quays the Governor had foreshadowed were not built in the very early days principally because His Majesty's ships did not come alongside, but always laid out in the stream; and most stringent precautions were taken to prevent unauthorised communication between the vessels and the shore. On Phillip's plan of Sydney in 1788, it will be seen that the positions of the "Sirius" and other vessels of the fleet are shown where they were moored off the mouth of the Cove. But, as all the men, women and stores had to be landed, Mr. Alt, the first engineer, commenced the erection of a wharf or landing place at once on the spot, just between where the Harbour Trust Offices and the Commissariat Stores now stand. This structure was known for many years as the Hospital Wharf, because it was close to the hospital buildings of the day. A second wharf, known as "The Governor's,"

was built later, at about the site of the present Paragon Hotel, on the opposite bank of the Tank Stream, which then intervened between the two sides of the town. That the goods were lightered from the storeships to these wharves, is borne out by several references in the "Records" to punts or flats to be used for unloading ships. These two wharves are shown in numbers of the early pictures and plans of Sydney, the earliest being the map of 1788. In Collins's work published in 1798, the Hospital Wharf is seen in some of the plates with a kind of gallows at the end, to carry a tackle for hoisting up casks, etc. Governor Hunter, and then Governor King, succeeded Arthur Phillip, but they built no additional wharves; the Hospital Wharf was, however, continually being enlarged and improved, and was re-named "The King's Wharf." On the Accession of Queen Victoria it was again altered to the "Queen's Wharf," by which name the site is still known to most persons; but as an independent wharf for shipping, it disappeared in 1855, at the time when the Circular Quay extension on the west side overshadowed it entirely. The name, however, was retained for the neighbourhood for another fifty years, until recently, when the open space for some occult reason was named Barton Street.

The first commercial wharf in Sydney Harbour, the only important one for many years, and for long days a land-mark of the port, was undoubtedly Campbell's Wharf. Robert Campbell the elder, arrived from Calcutta when the infant Australian settlement was only ten years old; he brought with him knowledge, capital, and energy, and for three-quarters of a century he, and his son John after him, were merchant princes of Australia. Mr. Campbell bought his first land from John Baughan, the master carpenter of the settlement, this was afterwards added to, and as a result of the expenditure of £20,000 by him, a wharf with stores and residential mansion arose on the ground between the present Mariners' Church and the Harbour View Hotel. This property was purchased by the Old A.S.N. Co. in July, 1876, for £100,000, and £30,000 was spent by them in improve-

ments. After selling a strip to the city to widen George Street, and a portion of the garden to a syndicate for £40,000, the Government, in October, 1887, purchased the main property for £275,000. A little sidelight is thrown up on the wharf arrangements of those early days by an official despatch which was written by Captain Colnett, of H.M. Ship "Glatton." This worthy salt appears to have had some little differences with the authorities on shore, and in an apparent endeavour to get even with them, thus describes, inter alia, the Government wharves in Sydney Cove:—"The principle one on the Western side, where most of the provisions and stores are landed at a double gallows, was in that decayed state we had to fish it to land the guns. The other on the east side is the worst, with no convenience. The wines and porter had to be thrown overboard and swam ashore. The only good landing place that has a respectable appearance has been erected by a Mr. Campbell." Captain Colnett was not only severe, but was sarcastic; for, continuing with a reference to the dock-yard—then between the site now occupied by the Commissariat Stores and the bottom of Argyle Street, he says:—"It is confined, badly situated, not capable of improvement, and I have seen a dog kennel larger."

THE DEVELOPMENT OF THE SHIPPING BUSINESS.

The first large merchant vessel that came to Sydney was the "Castle of Good Hope," 1,000 tons, and it was consigned to Robert Campbell, arriving February 14, 1803. As the wharfage accommodation required in any port is guaged to a large extent by the tonnage of the shipping to be accommodated, it will be interesting to compare the trade of the past with that of the present.

From the Historical Records, we learn that in the first 12 years of the Colony's existence, that is, up to January, 1800, the total number of vessels which arrived was 118. Out of this, 37 were transports, with 6,000 prisoners. In 1801, 29 vessels arrived, aggregating 7,642 tons. This record was taken as the result of an order from the Governor, but no

proper systematic registration was made for some time afterwards. Twenty-five years later, however, the arrivals had increased to 85 per annum, and the tonnage to 24,560.

Tabulating the vessels and tonnage at intervals of 25 years for the last century, and the first five years of the present one, we have the following:—

Years	Vessel.	Tonnage	Percentage of Increase in the Period.
1800	29	7,642	...
1825	85	24,560	325 per cent
1850	976	234,215	950 ,,
1875	1,145	590,700	250 ,,
1900	1,819	2,716,600	450 ,,
1905	9,626	5,681,071	200 ,,
		Total increase	7,400 ,,

Thus showing that the tonnage inwards increased 3¼ times in the first quarter century; 9½ times in the next quarter, or 35 times in 50 years; 2½ times in the next quarter, or 77 times in 75 years; and 4½ times in the next quarter, or 356 times in the century. But the most amazing growth has been since the New Century, because the shipping tonnage in that time has doubled, and in 1905 was 700 fold that of 1800. In 1907 it had increased from seven thousand to seven millions of tons. It is unnecessary at present to refer further to this increase, as the diagram No. 1 shows it graphically and clearly. (Plate XVI.).

THE FIRST WHARVES.

To go back to early days; in 1803, November 29th, Governor King issued a general order, "That the framing lengthening and planking of the wharf on the Eastern side was completed, and that the inhabitants were expected to cart material to fill it up with earth and rubbish, and to make a way to it."

By general order of July 22, 1806, it was notified that "persons loitering about the wharves would be put to hard labour for the rest of the day." Anybody "found on a wharf after sunset that does not belong to a ship will be put in gaol."

When Governor Macquarie arrived at the beginning of 1810, things began to move a little brisker. He it was who proclaimed Hyde Park and George Street, built the fort at the north-east end of the Cove, and ordered the Market Wharf to be built. On the 16th February, 1811, he issued an Order, "That the vessels arriving from the Hawkesbury, Parramatta, or Kissing Point, and all produce, were to go to the Market Wharf, and not to the Hospital Wharf, as heretofore." A map, of 1822, shows that Cockle Bay, now Darling Harbour, had then only one private wharf, and that was McArthur's, near the Market Wharf; but Messrs. Underwood had a wharf many years before on the banks of the tank stream, behind where Messrs. Crane's offices now stand, and the first Colonial ship, the "King George," was launched from there on the 19th April, 1805. As the words frame, and framework of timber, are used in describing these wharves, it would appear that neither the public or private erections were for a long time in our history, built on piles; but were simply timber frames laid on the rocks, and filled in with ballast, the depth of water required for the very small harbour and coasting vessels trading at that period not being very much. In the middle of the Thirties, the aggragate burden of the arriving ships had risen to 100,000 tons a year, and the maps of the day show that there were then a number of private wharves, among which were Bettington's, at the bottom of Bettington Street, Miller's Point; Aspinall and Browne's, now the "Central"; Pitman's, now Saywell's; Lamb's, now Parbury's; and Walker's Wharves; all at the north end of the city. There were also long extensions by ballast jetties to deeper water over the mud flats at the head of Cockle Bay, at some of the streets south of Market Street; and at Barker's and Dickson's Mills, these jetties extended where the whole is now reclaimed, and the city covered with buildings. At the north end of the town, Moore's Wharf, The Australian Co.'s Wharf, and Duke's, at Miller's Point, followed; and wharves for coasting vessels were built in Darling Harbour.

THE DEMAND FOR IMPROVEMENTS IN SYDNEY COVE.

With all these provisions for vessels by private wharf-owners, Sydney Cove has always been, as it is still, the maritime focus of Sydney, the centre of its wharfage accommodation; and it has now for over seventy years been the subject of almost continuous discussion and enquiry. Mr. Commissioner Bigge, who was sent out by the Home Government to enquire into the administration of Governor Macquarie, reported in the year 1822, with regard to the King's Wharf, as follows:—"From the increase in the trade of the port, and the decay of the wharf itself, the accommodation for landing goods upon it is very inadequate; and they are not allowed to be landed at any other place. It is therefore advisable the wharf should be either enlarged, or that another wharf should be constructed in some other part of Sydney Cove."

The Commissioner proposed to make the Quays communicate with Pitt Street at Hunter Street, as he "Could not venture to recommend taking part of the grounds of Goverment House." These grounds then came right down to a promenade at the waterside, from about Macquarie Place round to where the Blackwall stores stand now. Ten years after Bigge's reports were written, the shipping requirements had so further increased that on November 2nd, 1832, Governor Sir Richard Bourke addressed the Home Government on the question of removing Government House, (then at the corner of Bridge and Phillip Streets), and giving up the water frontage for quays. It was about this time that a proposal was first made to construct a semi-circular quay, and on the 12th July, 1833, the Council appointed a sub-committee to examine the plans for the same. Shortly afterwards, on the 30th November of the same year, a brig named the "Ann Jameson" blew up at the mouth of the Tank Stream, just about where the Lane Cove steamers now berth, and as her remains for years obstructed the free access to the King's Wharf, the position was accentuated. Digressing for a moment, this vessel has an interest for engineers, be-

cause she had brought out from home on a previous voyage, the family of the Russells, of which the late Sir Peter Nicol Russell, founder of the P. N. Russell School of Engineering at the University, was a member. The author was apprenticed to Mr. Russell's firm in 1855, soon after his arrival from England.

To resume; the report of the Committee of Council was brought up three years later, on the 12th August, 1836, and although there appears to have been no feverish haste in those days about much needed public works, active steps were taken to get the quay put in hand; £5000 was voted, and two diving bells were ordered from England to enable the foundations of the quay wall to be put in. An extract from this report reads:—"The scheme is capable of extension by scarping the rocky shore along the eastern side of the Cove to the present landing place near Fort Macquarie. At moderate expense accommodation for about thirty ordinary sized merchantmen will be afforded at one and the same time." Forty years after this date another official plan was brought out embodying something the same idea of berthing a great number of small vessels at this same site, which is now generally fully occupied by three steamers. In going through some old papers in the Chief Secretary's Department, looking up information about the construction of these wharves or quays the author happened upon an incident that may be worth recounting, as showing that the wisdom of the serpent is not a new thing. When the diving bells, and also the nachinery for the old dredge "Hercules" (ordered from the Rennies, in London), was ready, a Mr. Barnard, then Agent-General in England, arranged for the freight by the "Thomas Bold" at 34/9 a ton; and, as there were 34 tons, the freight came to £59 1s. 6d.; but it appears that the coamings of one of the hatches had to be cut to get the diving bells down, and for this little incident the trifle of £150 was added to the freight, so that the account, as rendered and paid, was £209 1s. 6d. The £150 was, however, refunded to the Imperial Treasury Chest four years later by a vote

of the Colonial Council. After the arrival of these diving bells, the real work of building the quays (which Governor Phillip had foretold fifty-three years before) was initiated on the 19th February, 1841; and the work which was constructed during the following seven years is still in existence from the North Shore Wharf round to the Orient Co.'s berth. The south-east corner has recently been filled up, and some of the original wall been hidden, opposite the foot of Phillip Street, in order to widen the roadway for the tramlines. Robert Paten was the superintendent of this construction, which was carried out by Government men. Between the western end of this stone wall, and the King's Wharf was the Tank Stream Estuary, the tidal waters in which were formerly open right to south of Bridge Street, which continued to silt up, as the original surface was disturbed by the progress of the towing. The owners of frontages to Macquarie Place and George Street, thus had the depths of their properties continually increased in area, while they thereby lost their wharves and water frontages; but up to sixty years ago, it was still necessary to journey right up to Bridge Street in order to get over dry shod from one side of the town to the other, unless you took a boat.

In 1845, Messrs, Morehead and Young applied to Sir George Gipps, the Governor, for permission to build a small foot-bridge over this gap, from about where the Harbour Trust Offices now stand, towards the Paragon Hotel site, and this convenience to the public—known to old Sydneyites as the Halfpenny Bridge—stood for about eight years. (See maps of Sydney of 1854.) When the author came to Sydney, the "bones" of the old brig "Governor Bligh" were still in the mud about where Sargent's shop now stands. It was in this locality that the first reference to use of piles for wharf building applies which the author has been able to find in the old records. In the evidence of a Mr. Wilson, given before the Select Committee for the Circular Quay enquiry, the 6th July, 1847, the witness said, speaking of the site now occupied by the Harbour Trust Office:—"In 1834, when Wilson

Bros. took the store of Mr. Hanson, there was a small jetty projecting at the north end of the sheds. . . . Wilson Bros. arranged with Mr. Hanson that he should put up a wharf on piles including the water frontage to the stores, and to the Rum Puncheon Hotel." Joseph Hanson said on the same date, "I remember the water of such a depth . . that vesels, chiefly coasters, used to load and discharge there. In fact, a large portion of shipping trade was carried on in that locality, and what is now called the Tank Stream—from nearly as high as Bridge Street down to the present wooden bridge—was neither more nor less than a portion of Sydney Cove." The Rum Puncheon Hotel will be remembered by many as the Oriental Hotel. It was pulled down just before the Fire Station was built. The wharf in front of it was in those days called the Liverpool Wharf. The "Sophia Jane," which was the first steamer to ply in the Colony, arrived on 15th May, 1831, and commenced by running from this Lord Liverpool Wharf to the Hunter River, succeeding the sailing packet, "Lord Liverpool," from which the wharf derived its name. It was afterwards called the "Bon Accord" Wharf.

From 1836 to 1839, the Hunter River steamers ran from Darling Harbour; Grose's Wharf—now the Anchor Mills at Bathurst Street—and Kellick's Wharf—next to Margaret Street, were notable private wharves seventy years ago.

The Hunter River Company, afterwards the A.S.N. Co., was founded in 1839, and their first iron steamers, the "Rose," Shamrock," and "Thistle," were for years the pride of the Port. This Company established their wharf on the north side of Margaret Street, on reclaimed ground, the water in that neighbourhood originally flowing nearly up to the present line of Kent Street, between Margaret Street and Erskine Street.

EXTENSION OF THE SEMI-CIRCULAR QUAY.

The second era of Government Wharf improvements in Sydney Cove commenced in 1854, when plans were prepared for completing the semi-circle and extending it down the

western side to Campbell's Wharf, where the Mariners' Church was soon after built. This extension was entirely a timber construction, and involved the pulling up of the Half-penny Bridge, before referred to, and the obliteration of the "Bon Accord" and "Queen's" Wharves. It also led to the dropping of the prefix "Semi," and the whole locality being known henceforth as the "Circular Quay." The tonnage of the wool ships had by this time so increased, that, owing to the depth of water required by even the smaller ones, they could not get alongside the old stone quay, and thus long stages from 50 to 70 feet long were hung from the shore to the ships' side, along which the wool and other cargo was moved by hand. (Plate XVII.).

With the new wharf on the west side the additional depth of water enabled the old traders of the "Fifties," "Sixties," and 'Seventies," such as the "Dunbar," "Duncan Dunbar," "La Hogue," "Vimmera," "Sobraon,' etc., to lie closer alongside.

This timber wharf, built in what was known as the Gold Times, was the subject of many enquiries, and a great deal of scandal. The late Captain T. S. Rowntree reported upon it very adversely, both as to the material and workmanship, and many discussions in Parliament ensued thereupon.

The clerk of Works was Mr. Malbon, who it is evident was not inclined to cheapen his position. It would appear that when the small foot-bridge was demolished, the toll-house about six feet square was assigned to him for an office. On turning over some of the official correspondence of the day, the author came across a requisition from this gentleman to the Colonial Architect for furniture for his new office, which, on arrival, evidently did not please him a bit, as in a subsequent letter to his chief, he writes with wounded dignity about the chairs, and complains that "The washstand is only of the common or bedroom variety."

The most foolish feature in connection with this new and costly quay was the decking of Oregon planks to carry a ballast of sandstone, and then a metalled roadway. Of

course, the soft timber began to rot away at once, and the whole of the covering had to be removed and the planking stripped within a few months; it was then re-decked with hardwood. This was about the last great work carried out under the old form of Government. After the establishment of Responsible Government in 1856, the first important wharf built was the Cowper Wharf in Woolloomooloo Bay, 1861 to 1863, and later the Iron Wharf at Darling Harbour, 1870 to 1872. The former was a useful, plain and simple structure, but the Iron Wharf was the subject of much discussion, both in Parliament and in the press, and is a trouble to its keepers at the present day, owing to the constant cleaning and painting required.

In February, 1901, the whole of the Government Wharfage of Sydney passed into the keeping of the Harbour Trust Commissioners, who, with their able staff of professional experts, have since wrought wonderful improvements not only in the accommodation provided for the ships, but in the aesthetic appearances of the wharves and their surroundings. These conditions present a most remarkable contrast to the way things were managed thirty-six years ago, when qualifications were not imperative for the holding of high positions, and the still and ever increasing numbers of vessels arriving, and their greater tonnage, together with the advent of the cargo steamer, demanded expert treatment.

This led to the third era in the improvements of the Circular Quay, which commenced in 1872. At this time another Select Committee of Parliament took up the matter, and on the 26th November, 1872, Captain Robertson, of the "Abergeldie," giving evidence before them, objected to the ferry boats going up to the foot of Phillip Street, "as they were liable to set the ships of fire. His ship, he said, had to be moored 80 feet off the shore. Other witnesses accentuated the short-comings of the accommodation, and there was an imperative demand for radical improvements, particularly on the east side, where the vessels' sides could only be reached from the shore by the long stages. A scheme for improve-

ments was then brought before this Select Committee, and officially recommended for adoption, which is distinguished in the report to Parliament as Appendix B. This design was of a character which would be impossible under the present control of the Harbour. It is shown as Fig. 1. on accompanying Plate XVIII. This wharf was the subject of lengthened controversy, and had the following characteristic features:—

1. It was for an iron structure consisting of thin plate web girders, on cast iron cylinders.

2. It provided a relatively great number of short berths for relatively small vessels.

3. It had a continuous line of sheds for cargo protection from end to end, through which all the traffic had to pass to the shore.

4. These sheds were placed close up to the very edge of the wharf.

Additional features which will be noticed in the plan are: The locking in of several of the vessels by other ships which overlap them, and which would thus prevent the withdrawal of the former without first moving the outer ones. The impossibility of mooring the two vessels shown across the ends of jetties without the provisions of dolphins (not provided). And the further the impossibility of unloading a steamer at all when she was across the end of such jetties, with the hatchways quite clear of the wharf. These berths were intended to have the depth of water increased sufficiently to take most of the vessels which then visited the port, and thus they would have obviated the use of the long stages from the shore. About these stages, the ship masters complained seriously, not only on account of them straining their vessels, but also because they gave so much extra labour to their men in loading and discharging. The author of the design seems, however, although very dogmatic in his opinions, very singularly to have altogether misunderstood this position, for on the 30th January, 1872, after having informed the Committee that the cost of his proposed Iron Wharf would be £63,249, he made

the following statements:—"In parts where the water is deep the long stage is used because it is more easy to run the goods along an inclined plane to the shore than it would be to hoist them up vertically and lower them."

Now, seeing that all goods in being discharged from a hold, have to be lifted up and over the bulwarks under any circumstances, nothing would appear to be simpler than dropping them directly on to the wharf. At any rate, such is the practice now, and was then where it was possible to get the vessels alongside. It would, however, have been difficult for the slings to drop the goods on to the wharf at all, with the roof of the sheds close up to the ship's side, as proposed.

In this plan, the "Sobraon" (still in Sydney), and the "Underlay" are shown as berthed across the ends of 60 feet jetties, in conjunction with which arrangements and in reply to Q. 254, the author of the design said:—"This scheme allows the vessels to lie at the wharf so that all their hatches are available." With regard to the construction and in answer to Q. 727, he further said:—"I am determined never to use timber for a wharf if I can help it." It is unnecessary to say that such is not the opinion of the present Harbour Trust Commissioners, who still use timber and concrete, in fact, this design met with so much opposition from practical people, shipowners and others, at a time when everyone seemed to take an interest in the matter, that a whole legion of schemes were in consequence brought out in competition with or in opposition to it. A number of these were fresh official designs, or modifications of the original one, while others were by Lieut. Gowlland, Mr. Thomas Woore, Mr. Musson, and the author; as a consequence the enquiry was then extended to another session of Parliament.

Lieut. Gowlland's plan was for a series of wooden jetties, with a timber wharf around the shore to be erected in front of the old stone wall; but, in opposition to its author's proposals, the Engineer for Harbours added an entirely new stone wall to the scheme, and thus so greatly increased the estimated cost as to practically put it out of Court. (See Fig. 2. (Plate XVIII.).