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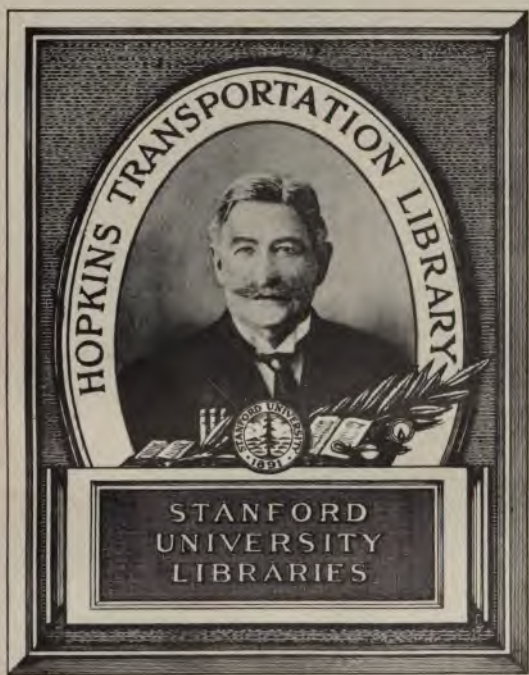
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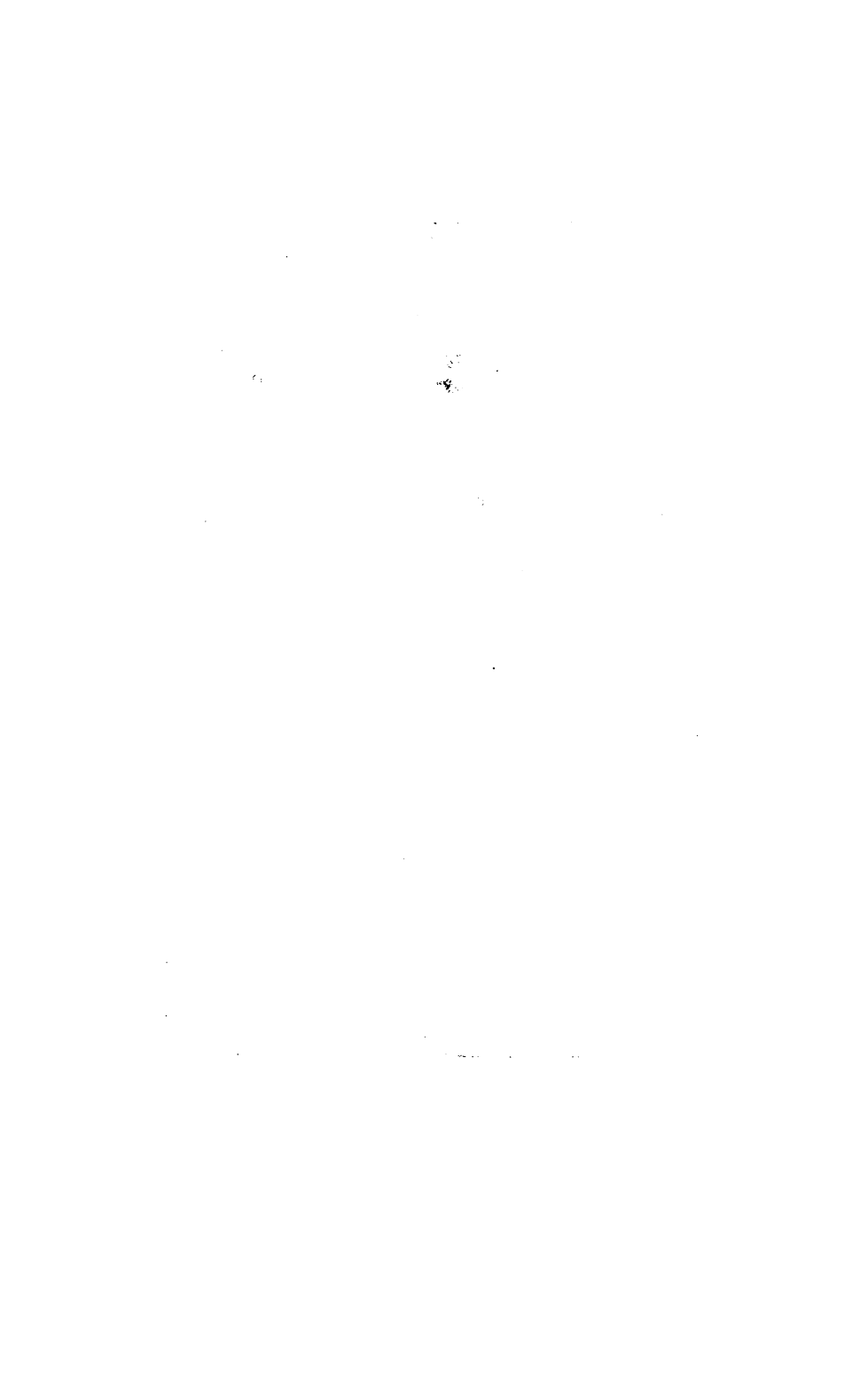
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The Clyde Passenger Steamer

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WILLIAM DENNY

The Clyde Passenger Steamer

*Its Rise and Progress during
the Nineteenth Century*

From the 'Comet' of 1812 to the
'King Edward' of 1901

By
Captain James Williamson

Glasgow
James MacLehose and Sons
Publishers to the University
1904

GLASGOW: PRINTED AT THE UNIVERSITY PRESS
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To
THE MEMORY OF
WILLIAM DENNY

Born at Dumbarton, 25th May, 1847
Died at Buenos Ayres, 17th March, 1887

He was one of the ablest and noblest of his day;
his premature death was an irreparable loss to the
community in general, and to the practical and
scientific world in particular

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The Clyde Passenger Steamer

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CHAPTER I

EARLY DAYS

PECULIAR interest belongs to the inception and development of the passenger steamer on the River Clyde. The Clyde was the cradle of the steamship enterprise of the world, and the Clyde passenger steamer has been the pioneer of many, if not most, of the improvements in hulls and machinery and of the countless amenities which make travelling by sea a pleasure to-day. The sustained excellence of the boats is proved by the fact that most of them are ultimately bought up for service elsewhere. During the American War many were purchased and sent across the Atlantic to distinguish themselves as blockade-runners, while others have been acquired for places as far apart as Bordeaux and the Bosphorus, Japan and the River Plate.

Locally, the benefits conferred by the passenger steamer are beyond calculation. To say nothing of the health and prosperity given to the city of Glasgow, one has only to point to the shores of the Firth, where pleasure resorts have everywhere sprung into flourish-

2 THE CLYDE PASSENGER STEAMER

ing existence since the coming of the swift steam craft. Sir James Marwick, in his admirable account of *The River Clyde and the Harbour of Glasgow*, points out "how much not only the City of Glasgow, but the whole of the Clyde district, owe to the far-seeing energy of those who have made the river a great commercial highway." On the other hand, a large part of the credit is undoubtedly due to the steamship enterprise which rendered the deepening and widening of the river a necessity, and in that enterprise the Clyde passenger steamer played a leading part.

Previous to the year 1812, according to the *Chronicles of St. Mungo*, "the vehicles of communication to the new port of Greenock were a species of wherry-built nutshells designated 'Flyboats,' and the value of this term will be appreciated when it is considered that they generally completed their voyage in the short space of ten hours. The conveyance of goods and passengers to places more remote than Greenock was a more ambitious ship, generally known by the name of 'Packet,' which, with a fair wind, could reach the Isle of Bute in three days, but, when adverse, thought it 'not wonderful' to plough the billowy main for as many weeks!"

All this was to be changed by two men who hailed from the shores of the Firth. It was James Watt, a native of Greenock, who, as instrument-maker in Glasgow University in 1765, had the little model of Newcomen's

engine placed in his hands for repair, and, in the course of the work, discovered the separate condenser which has revolutionised the navigation of the world.

And it was Henry Bell, a resident of Helensburgh, who, in 1812, placed on the waters of the Clyde the little steamer "Comet," which was the pioneer of the splendid fleet of passenger steamers which ply on these waters at the present day.



HENRY BELL

This is not the place to discuss the disputed claims as to who was the original inventor of the steamship. Henry Bell has left it on record that in 1800, and again in 1803, he laid before Lord Melville and the Lords of the Admiralty a scheme showing "the practicability and great utility of applying steam to the propelling of vessels against winds and tides, and every obstruction on rivers and seas, where there was depth of water." Of all the Lords of the Admiralty, Lord Nelson alone believed in the practicability of the scheme. "My lords and gentlemen," he said emphatically, "if you do not adopt Mr. Bell's scheme, other nations will, and in the end vex every vein of this empire. It will succeed, and you should encourage Mr. Bell." Notwithstanding the advocacy of the most influential naval officer

4 THE CLYDE PASSENGER STEAMER

of his day, "My Lords" considered that "the plan proposed would be of no value." Commenting on the result of his appeal to the Admiralty, Mr. Bell proceeds: "Having obtained no support from my country, I made correct prospectuses of my long matured plan, and forwarded copies to the nations of Europe and to the United States of America. The Americans were the first who put my plan into practice, and were quickly followed by other nations."

There had been experiments before Bell's time in propelling vessels by steam. In 1781 the French Marquis de Jouffroy had made fruitless attempts on the Saône at Lyons. In 1785 two Americans, Ramsay and Fitch, encouraged by George Washington, made similar efforts with the same result; and in 1788, Patrick Miller of Dalswinton, with Andrew Symington for his engineer, experimented with a mid-wheel boat on Dalswinton Loch with some degree of success. But it was not until the year 1802 that the project proved itself to be practicable. In March of that year, at the instance of Lord Dundas, governor of the Forth and Clyde Canal, Symington put his stern-wheel steamer, the "Charlotte Dundas," upon that water-way, and towed two loaded sloops, the "Euphemia" and "Active," of seventy tons each, from Lock 20 to Port Dundas—19½ miles in six hours—against a strong wind. Robert Fulton, who had visited Henry Bell, and been in correspondence with

him on the subject, came next, and in 1807 the steamer "Clermont" was plying between New York and Albany. The triumph of the Helensburgh inventor came four years later. Whoever may be entitled to priority in the conception of a navigable steamer, it is an undoubted fact that the credit of the introduction of the first steamboat on the Clyde is due to Henry Bell.

Edward Morris, in his biography of Bell, describes him as "a man of a restless, ingenious mind, ever plodding and scheming to reach an eminence by original inventions. His curious propensity to try experiment after experiment, to drive at a new scheme when the previous one was but half completed, perplexed and involved him in great difficulties, but the steamboat was ever before his mind's eye, and after all our British engineers, and James Watt at their head, had nearly abandoned the hope of conquering the ocean by fire-driven, steam-propelled vessels, Henry Bell made the Broomielaw resound with the shout of thousands when he put the new fiery power to his little vessel." The inventor was descended from a family which had followed the occupation of millers and mill-wrights for centuries, and at one time held all the principal mills on the Water of Evan. He was born at Torphichen Mill, near Linlithgow, on 7th April, 1767, and after trying masonwork and serving an apprenticeship with his uncle as a mill-wright, he wrought successively at the trades

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of ship-modelling and engineering, and was engaged for a time under the celebrated engineer, Rennie, in London. In 1790 he settled in Glasgow, and as chief partner of a building firm erected many public works in the city. Eight years later, to quote his biographer again, "he turned his attention chiefly to his grand object, the steamboat. In the spring of 1800 he became acquainted with a gentleman who had a fine pleasure vessel. In this Bell placed a boiler and engine of four horse power, with machinery for the paddles, and a strong cover-board that folded over from the top of the bulwarks, to prevent the rushing up of the water when at work." In the following year, seeking to improve on his experiment, he applied to James Watt at Birmingham for advice as to a portable engine that would stand on its own base with stout levers, of which he prepared a plan. Watt's reply was discouraging. "How many noblemen, gentlemen, and engineers," he wrote, "have puzzled their brains, and spent their thousands of pounds, and none of all these, nor yourself, has been able to bring the power of steam in navigation to a successful issue?" Driven back upon his own resources, Bell struggled for ten years for the realization of his project, but he realized it at last.

The "Comet," so called from a meteor which appeared in the heavens at this period, and attracted much attention, was built in 1811, to the order of Henry Bell, by John Wood at

Port-Glasgow,¹ and was advertised in August, 1812, as a public conveyance for passengers on the River Clyde, between Glasgow and Greenock. The vessel was 43 feet 6 inches long, 11 feet 4 inches beam, and 5 feet 9 inches deep, and was $24\frac{5}{8}$ tons burden. The engine was made by John Robertson, of Dempster Street, Glasgow. It was four nominal horse power, with a single upright cylinder of $12\frac{1}{2}$ inches diameter and 16 inches stroke, and driving, by means of two rods, a pair of half side levers. The crank shaft, on which was fixed a heavy flywheel, was worked from the levers by a connecting rod. The slide valve was driven by an eccentric on the main shaft through a rocking shaft, while the condenser was placed between the side levers, which drove the vertical air pump. Originally the engine was fitted with a smaller cylinder, but after being used for some months, this was replaced by the one described. Steam was supplied by an internal flue boiler, built by David Napier.² The vessel was originally propelled by two paddle-wheels on each side,

¹ For details regarding the "Comet," I am indebted to records kindly supplied me by the Secretary of the Victoria and Albert Museum, London, where the original machinery of the vessel now stands.

² Napier has put it upon record that he had some difficulty with the boiler. "Not being accustomed to make boilers with internal flues, we made them first of cast iron, but finding that would not do, we tried our hand with malleable iron, and ultimately succeeded by various devices in getting the boiler filled." For this work Bell gave Napier his promissory note at three months.

8 THE CLYDE PASSENGER STEAMER

driven by spur gear, with the paddles on detached arms, but this arrangement giving trouble, complete wheels were substituted, and subsequently, after the vessel had been lengthened about twenty feet, the number of wheels was reduced to two. A speed of about five knots per hour was attained.



'COMET,' 1812

After several experiments, the "Comet" sailed regularly from Glasgow. She was the first vessel moved by steam which successfully carried on a regular service in Europe, thirteen years before the opening of the first public railway. Her first master was Captain William Mackenzie,¹ originally a schoolmaster

¹ The records in the Custom House at Port-Glasgow give the name of the first master of "Comet" No. 1 as J. Bruce, although all other records state that Wm. Mackenzie was first master.

in Helensburgh, and the engine-room was attended to by Robert Robertson. The crew consisted of eight hands, including a piper.

The advertisement in the *Glasgow Chronicle* of 14th August, 1812, ran as follows :—

THE STEAMBOAT "COMET."

BETWEEN GLASGOW, GREENOCK, AND
HELENSBURGH.

For Passengers only.

The subscriber, having, at much expense, fitted up a handsome vessel to ply upon the river Clyde from Glasgow, to sail by the power of air, wind, and steam, intends that the vessel shall leave the Broomielaw on Tuesdays, Thursdays, and Saturdays about mid-day, or such an hour thereafter as may answer from the state of the tide, and to leave Greenock on Mondays, Wednesdays, and Fridays in the morning to suit the tide.

The elegance, safety, comfort, and speed of this vessel require only to be seen to meet the approbation of the public, and the proprietor is determined to do everything in his power to merit general support.

The terms are for the present fixed at 4/- for the best cabin and 3/- for the second, but beyond these rates nothing is to be allowed to servants, or any person employed about the vessel.

The subscriber continues his establishment at Helensburgh Baths, the same as for years

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past, and a vessel will be in readiness to convey passengers by the "Comet" from Greenock to Helensburgh.

Passengers by the "Comet" will receive information of the hours of sailing by applying at Mr. Houston's Office, Broomielaw, or to Mr. Thomas Blackney's, East Quay Head, Greenock.

HENRY BELL.

Helensburgh Baths,¹ 5th August, 1812.

The feelings with which the first appearance of the "Comet" were regarded by the natives of the coast towns may be judged by an anecdote supplied to me by the late Captain William Orr, of Greenock, as follows:—

"I was born in Greenock not far from the river side, and have a distinct recollection when the 'Comet' first came to our quays, and of the opinion then entertained about her by many in our town. When she would be reported as coming round Bailie Gammell's Point, all of us children ran down the quay to see her blow up and see the sailors and passengers 'fleein' in the air.' We were not much disappointed at the time, as it was sure to happen soon."

On the 2nd September the sailings of the "Comet" were extended *via* Tarbert and the Crinan Canal, to Oban, Port Appin, and Fort-William, the return journey occupying four days. Before long, however, the steamer seems

¹ Bell had removed to Helensburgh in 1808, and become tenant of the new Baths Hotel, which continued to be managed by his wife till her death in 1856.

FAC SIMILE
OF PROMISSORY NOTE ISSUED BY HENRY BELL TO DAVID NAPIER IN PAYMENT OF THE DOLLAR OF "THE COMET"
THE FIRST STEAMER THAT CARRIED PASSENGERS IN EUROPE

Glasgow 12th Feb^y 1816
£62 - 8th
Six months after date I promise
to pay Mr David Napier or order at his family
house in Glasgow the sum of Sixty two
pounds Sterling for value received
Henry Bell

ENDORSEMENT ON BACK OF ABOVE David Napier

RENEWAL OF ABOVE PROMISSORY NOTE.

Glasgow 17th May 1816
£62 - 8th
Six months after date I promise to pay
Mr David Napier or his order at Mr J. A. R. In
his business counting house in Glasgow
the sum of Sixty two pounds 8th of Sterling
for value received Henry Bell

SETTLEMENT OF PAYMENTS TO ACCOUNT ON BACK OF ABOVE

1814
2nd 13th Dec 1815
1816
Aug 14 Contd 10
do - 2nd 16

The original Documents are the property of Napier Brothers, and are lent by them
to the Kelvingrove Museum, Glasgow, for exhibition.

BELL'S PROMISSORY NOTES

12 THE CLYDE PASSENGER STEAMER

to have been transferred to Grangemouth, but in August, 1819, she re-appeared on the West Highland route.¹ She continued that service till the following year, when, on 13th December, 1820, on the passage from Fort-William to Glasgow, she was caught by the strong tide-race and easterly wind, and wrecked at the Doris-Mhor, outside Crinan. The after part of the vessel drifted towards Corrievreckan, but the fore end, from which Henry Bell and the crew and passengers had scrambled ashore, remained on the rocks, and from it the machinery was afterwards removed.²

In connection with this earliest of Clyde passenger steamers some details regarding builders and engineers seem worth preserving here. The following account of the career of John Wood, the builder of the "Comet," appeared at his death in the *Glasgow Herald* of 24th December, 1860:

"Mr John Wood was born on the 10th of October, 1788, and learnt the elements of his profession from his father, who was also a ship-builder in Port-Glasgow, and a man of much

¹ August, 1819, is the date of the first run recorded in the Reports of the engineers of the Crinan Canal, William Thomson and Thomas Telford.

² It may interest many readers to know that General Beatson, R.E., the late brother of the present respected secretary of the Royal Exchange, Glasgow, when a youth at Greenock, made a sketch of the "Comet," which he sent to the Hon. Mrs. Mackenzie of Seaforth. That lady passed it to the Duchess of Wellington, and it was the means of procuring for Beatson his first commission. The model of the "Comet" is in possession of James Reid, Glenhuntly, Port-Glasgow, whose father was partner with Wood, its builder.

talent and ingenuity. About 1806 he was placed under Mr. Brocklebank, shipbuilder in Lancaster, for ten years. At this time Lancaster enjoyed a considerable reputation for shipbuilding, and it was with the view of profiting by a superior knowledge there to be acquired that Mr. Wood served a part of his apprenticeship at that place. In 1811, on his father's death, Mr. Wood assumed the responsibilities of the building yard at Port-Glasgow, having for a year or two previously been actively engaged in the management of the



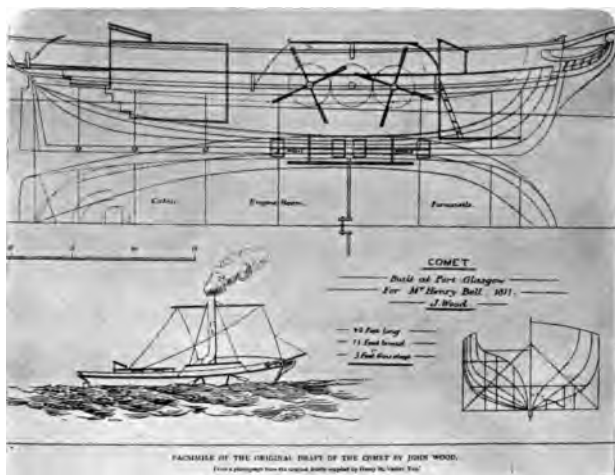
JOHN WOOD

work. One of his first engagements was the construction of the steamer 'Comet' for Mr. Henry Bell, which had been contracted for by his father. He subsequently built an immense number of river steamers, and steamers for deep sea navigation. One of the most celebrated of the latter at the time, and in every way successful (though the first of sea-going steamers), was the 'James Watt,'¹ which he

¹Above statement as to the "James Watt" being the first of sea-going steamers is incorrect. Pollock (*Modern Shipbuilding*) gives her date as 1822, four years after the "Rob Roy" had been placed by David Napier on the route between Glasgow and Belfast. Probably the reference is to the "Caledonia," built by John Wood in 1815. According to Galloway (*Steam Engine and its Inventors*) she was bought by James Watt, jun., in 1817, fitted with new engines by Boulton and Watt, and sent from England to Holland.

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built in conjunction with his brother, Mr. Charles Wood, to open a steam communication between London and Edinburgh. In the middle portion of his career he was chiefly engaged in building deep-sea and ocean steamers. By him the reputation of the Clyde as a field of production of steam vessels was raised to the



PLAN AND LINES OF 'COMET'

highest pitch, and other Clyde firms participated in the reputation thus brought to their doors. Of late years Mr. Wood has built few wooden ships, partly from the fact of these having fallen much into disuse, and partly from his having become a partner of his relative, Mr. John Reid, shipbuilder, Port-Glasgow, and, as such, aiding in raising the firm of Messrs. John Reid & Co. to the high reputation it now

enjoys. From this firm he retired some years ago.

“Mr. Wood’s brother, Mr. Charles Wood, who died a few years ago, was for some time associated with him in business, and he, too, was a very remarkable man, but perhaps too far in advance of the age in which he lived. Among his other designs he projected and constructed the great ship-rafts ‘Columbus’ and ‘Baron of Renfrew’ as a new expedient for bringing timber to this country. Although the latter of these was lost, the soundness of the principle may be held as established from the fact that the former reached this country in safety. There can be no doubt that these brothers have, by their talents and other gifts, conferred honour upon their profession, and have added to the lustre of their native land.”

To this may be added an interesting anecdote of Wood’s boyhood, furnished to the present writer by Mr. Matthew Blackwood, Port-Glasgow.

“His father,” Mr. Blackwood says, “had got a large chest of tea sent him, and he begged hard of his father to get the chest, which he made into a boat, and sailed in it, on one of the burns at Bishopton. The first night he was out he was watched by the natives of the place, and when he came ashore in his boat, lifted it, and put it on his head, to carry it home, the people fled to their homes, thinking he was a ‘kelpie.’ I expect this would be the first attempt at shipbuilding in the Wood family.”

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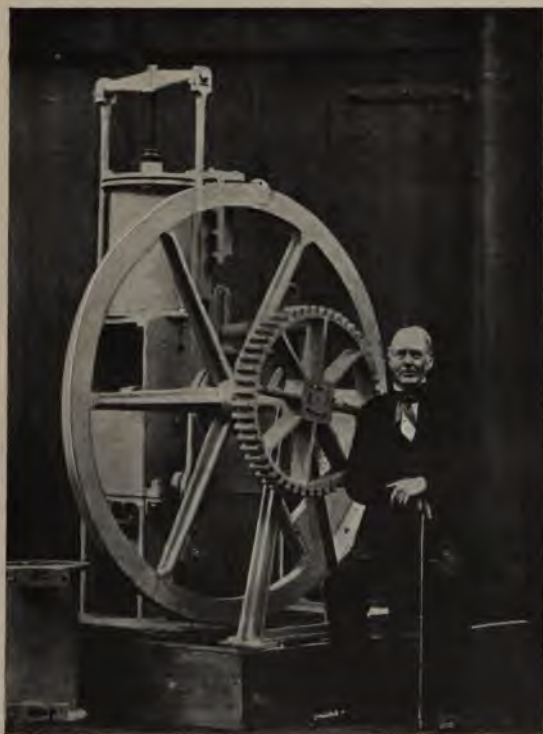
The following account of John Robertson, maker of the "Comet's" engine, has been furnished to me by Mr. David Bell, of the late firm of Messrs. Napier, Shanks & Bell, ship-builders, Yoker, to whom I am indebted for a number of particulars regarding early Clyde steamers :

"Mr. John Robertson, whose name is associated with the first 'Comet,' as maker of its engines, was born in the year 1782, in the village of Neilston, Renfrewshire, where his father, James Robertson, was superintendent of the cotton-spinning machinery at Broadley Mills.

"At the age of 14 John was apprenticed to the trade of spinning-wheel wright with a Mr. Cuthbertson in the same village. On completing his apprenticeship he went to Stanley Cotton Works, Perthshire, and after two years got employment in the machine shop of the late Mr. Dunn, of Duntocher and John Street, Glasgow. He continued in this service for eight years, and then commenced business for himself (about 1810) in a small machine shop in Dempster Street, off North Frederick Street, Glasgow.

"In 1808 Henry Bell, then lessee of the Baths Hotel, Helensburgh, had seen a small steam engine made by Robertson in his leisure hours, and got him to fit it up at the hotel, to pump sea water for the baths. Robertson was among the first to undertake the heating of mills and factories by steam, one of his con-

tracts, in 1810, being to supply and fit the heating apparatus for the drying stoves at Messrs. Stirling & Sons' Printworks, Cordale, Vale of Leven. He also constructed steam



JOHN ROBERTSON AND 'COMET' ENGINE

engines of small size, and carried on a variety of engineering work, being recognised as a clever and expert mechanic.

"In 1811 Robertson commenced a small side-

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lever engine, having a cylinder 11 inches diameter, 16 inches stroke, and about 3-horse power.¹ Henry Bell, being then engaged with his first steamer, arranged with Robertson to fit this engine, which was then about finished, into the 'Comet,' the price, without boiler, being £165. It was fitted into the vessel while in Mr. Wood's yard, Port-Glasgow, and appears to have been also started under steam there.

"Robertson was convinced that this engine would prove insufficient in power for Bell's purpose, and, it is also said, recommended strongly the fitting of only two paddle wheels—one on each side, instead of the two wheels on each side, which Bell had arranged for. The 'Comet' commenced to run in August, 1812 (Captain William M'Kenzie, master), but her speed was found unsatisfactory, and, after two months trial, Bell made a further agreement with Robertson to supply a cylinder of 12½ inches diameter and about 4-horse power. The first engine had not been paid for, and the price agreed on, to include both engines, with alteration of paddle wheels, etc., was £365. The alterations being completed, the 'Comet' was again started, and, under favourable circumstances, went easily at the rate of six miles per hour. Unfortunately, however, she did not prove a success financially, and, Bell's affairs becoming embarrassed, it is be-

¹This cylinder was in 1876 presented by Mr. Andrew MacGeorge to the Corporation of Glasgow. It is now exhibited in the Art Galleries.

lieved that neither the builders' nor Robertson's accounts were ever settled.

"The original engine of the 'Comet' was acquired by the late Bailie MacLellan, coach-builder, Glasgow, as payment for a vehicle he had previously supplied to Mr. Bell. After being used to drive the machinery in MacLellan's coach works, Miller Street, for several years, it was taken to Greenock and did duty at a brewery there, whence it came back to Glasgow. It was ultimately purchased by Messrs. R. Napier & Sons, of Lancefield and Vulcan Foundries, Glasgow, and by them it was, in 1862, presented to the South Kensington Museum, London, where it is preserved. Before being despatched, it was photographed at Vulcan Foundry, with Robertson sitting beside it, and he was sent to London to see it re-erected in the Museum. The photographs then taken give a very good likeness of Robertson, and another small likeness, presented by his old friend, Mr. Carswell, is preserved in the Art Galleries Museum, Glasgow. The photograph bears the inscription, 'Engine of the "Comet," designed and constructed by the Subscriber at Glasgow in 1811, and started in vessel in August, 1812. (Signed) John Robertson.'

"With the experience of the 'Comet' to guide him, Robertson set about the construction of another engine, which he hoped would give satisfactory results, and arranged with Mr. Wood to build for him the 'Clyde,' 1813,

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the dimensions of which were 72 ft. \times 14 ft. \times 7½ ft. Capt. Wm. M'Kenzie's memoir states that he was appointed pilot to the 'Clyde' in March, 1813, and that she sailed in June of that year with passengers between Glasgow, Greenock, and Gourock. He became master early in 1815, and continued to sail her till February, 1817. This boat was a favourite with passengers, regular in sailing, and proved comparatively successful financially. She could steam from Glasgow to Gourock and back—about 48 miles—with 24 cwts. of coal, the time being about 3½ hours each way, including eight stoppages at ferries, etc.

"Next year, 1814, Robertson had a river steamer built for him at Dundee. He constructed the engine, and fitted it on board there. The 'Tay,' as she was named, plied for four years between Perth and Dundee, and thereafter, under the name of the 'Oscar,' sailed between Glasgow and Lochgoilhead in 1818.

"Two more boats—the 'Caledonia' and the 'Humber'—were, in 1814, built to Robertson's order at Dundee, and engined by him; being then taken under steam to the river Humber—one to ply between Hull and Selby, the other to Gainsboro'. Probably, therefore, Robertson's steamers were the first sent from Scotland to England. They were run on his own account for about eighteen months, but not proving profitable, were disposed of by him at a considerable loss.

“In 1817 Mr. Wood built for him the ‘Defiance,’ and in 1818 the ‘Marquis of Bute,’ the engines of both being from the same patterns as those of the ‘Clyde.’ These boats appear to have plied on the Clyde, but the competition between the various river steamers became, after a time, so very keen, that Mr. Robertson found it impossible to maintain the position he had so honourably won by his earlier engineering successes. Gradually his property, which was wholly in steamboats, passed into other hands, and during the latter years of his life he became, to a large extent, dependent on the generosity of friends who had appreciated the distinguished merits and labours of the old engineer.”

CHAPTER II

SUCCESSORS TO THE "COMET"

WHEN the "Comet" was wrecked, Henry Bell was on his way to Glasgow to make arrangements with subscribers for the building of a new and more powerful boat for the West Highland trade. So rapidly had events marched, that in the space of eight years the pioneer steamer had become antiquated, and was being pushed from the waters by newer and more powerful rivals.

The second steamboat on the Clyde was the "Elizabeth." She was also built by John Wood, and to judge from an advertisement in the *Glasgow Chronicle* of 3rd April, 1813, she appears to have met with immediate success. That advertisement intimated that "the proprietors of the 'Elizabeth' passage steamboat are happy to inform the public that for their accommodation there will be another boat ready in the course of a few weeks, when one will start from Glasgow and one from Greenock every morning, and return the same evening." The "Elizabeth" was transferred to Liverpool in 1814.

The "Clyde" being next in the list, must have been the other boat referred to in the foregoing advertisement. She was re-named the "Gourock" in 1823, the "Lord Byron" in 1825, and the "George IV." in 1826, and was broken up in 1828.

Judging from the records of the early steam-boats, re-christening seems to have been very common. No reason is stated, but possibly the device was necessary to hide identity in those experimental days.

The "Glasgow," built in the same year, was supplied with machinery by Anderson & Campbell, of Greenock, under the superintendence of Henry Bell. The engines proved a failure, and by involving Bell in much litigation, contributed seriously to his financial embarrassments. New engines were substituted by James Cook, of Tradeston, and they seem to have given satisfaction. This was the first steamer placed on the Largs trade.

In the following year (1814) no fewer than nine steamers were launched. They were the "Morning Star" and "Inveraray Castle," by John Wood, Port-Glasgow; the "Trusty" and the "Marjory," by Archibald MacLachlan, Dumbarton; the "Princess Charlotte" and "Prince of Orange," by James Munn, of Greenock; the "Duke of Argyle," by Martin, Port-Glasgow; the "Oscar," by Smart, of Dundee; and the "Industry," by William Fyfe, of Fairlie.

Most students of Clyde river steamer lore

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are more or less familiar with the fact that Fairlie's reputation for shipbuilding originated in the construction of a trading steamer, not of a racing yacht. It is not so well known, however, that had the William Fyfe, who founded the yard—just about a hundred years ago—not been passionately determined to be a yacht builder, and nothing else, the destiny of the now world-renowned yacht-building yard might have been different. Nay, more; but for the enthusiasm of this William Fyfe for boats of pleasure, rather than for the ships of commerce, much of the shipbuilding that is now carried on above Greenock, might have been conducted on the foreshore of Largs and Fairlie.

The "Industry," which was built at Fairlie in 1814 by William Fyfe, the grandfather of the present famous Fairlie yacht designer and builder, was the seventh river steamer to be constructed on the Clyde, and she earned the distinction of being the oldest steamer in the world before she was broken up. Mr. Fyfe built the "Industry," with oak grown in his native parish of Kilbirnie, for a small syndicate of far-seeing speculators belonging to Beith. So well pleased were these gentlemen with the "Industry" that they would gladly have advanced Mr. Fyfe money on easy terms for the purpose of equipping his yard at Fairlie for the construction of trading vessels—more particularly vessels like the "Industry." They would give him neither help nor countenance,

however, if he persisted in building yachts; but yachts and smart fishing smacks, and nothing else, would William Fyfe build, and so, from that day to this, among the 500 and odd boats that have been built at Fairlie there never has been another trading steamer.



'INDUSTRY'

The original engines of the "Industry" were made by Dobbie, but in 1828, she was re-engined by Caird & Co., of Greenock, and it is this later machinery which now rests in Kelvingrove Park, Glasgow.

In this connection the description given by Mr. John Hastie at the meeting of the Institute of Engineers and Shipbuilders in Scotland

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on 21st December, 1880, is of interest. Mr. John Hastie said he was the last engineer that had to do with the "Industry" before she was laid up, and could supply some information regarding her. The original engines were taken out and replaced with the engines now on board by Caird & Co., of Greenock; he could not state the date, but it was at least thirty years ago. The spur gearing for driving the paddle wheels was retained to the last, and was a constant source of trouble on account of the cogs giving way, and spare wheels were always kept in readiness to replace them. She was known in Greenock harbour as the "coffee mill," from the grinding noise caused by the cogs.

Of the other vessels built in 1814, the "Princess Charlotte" and the "Prince of Orange" were the first steamers engined by Boulton & Watt of Birmingham for Clyde traffic. The former was re-named the "Greenock" in 1815, and in 1826 the machinery was removed, and she was converted into a sailing craft. There is no record as to whether the hull or the engine was at fault, or as to what became of the machinery. The "Prince of Orange" was re-named the "Port-Glasgow" in 1819, and broken up in 1828. The "Argyle" sailed a very short time on the river, being sold to foreign owners. She was taken abroad under sail, the funnel being used as a mast. London owners acquired the "Marjory." She was taken through the Forth and Clyde Canal,

and down the east coast, and the story is told how, when she entered the Thames, she created an immense sensation among the crews of the British fleet. She was the first steamer they had seen.¹ All the steamers built in 1814 traded for shorter or longer periods between Glasgow and Greenock, except the "Inveraray



AT LOCH GOIL JETTY

Castle" and "Oscar"—the former running between Glasgow and Loch Fyne, and the latter between Glasgow and Loch Goil, commencing in 1818.

The "Dumbarton Castle," built in 1815, was the first steamer in the Rothesay trade, and to

¹ The over-all beam of the "Marjory" was 4 feet 4 inches more than the width of the canal locks, and the fact necessitated the removal of one or both wings.

celebrate her advent Captain Johnston, her master, was presented by the local authorities with a punch bowl. These early admirers, it would appear, considered the command of one of these craft a post calling for nerve and daring—somewhat similar, perhaps, to the control of a sixty miles an hour motor to-day.

An interesting circumstance belongs to the history of this steamer. During his last visit to Greenock, in 1816, James Watt made a voyage to Rothesay on board of her, accompanied by his friend Mr. Walkinshaw. The excursion then occupied the greater part of a day. Naturally Watt entered into conversation with the engineer of the boat. In the course of their talk the latter told him of an incident which had occurred on the previous evening. The steamer had been aground on the river bank, and, as the tide rose, the pressure of the current on the paddle floats had caused the engines to reverse. Watt instantly grasped the situation, and proceeded to demonstrate with a footrule the importance of what had occurred. Failing, however, to make the engineer understand, he at last, under the impulse of the ruling passion, threw off his overcoat, and putting his hand to the engine, gave a practical illustration of his lecture. Previous to that date the reversing of machinery was either unknown or not generally practised. The custom was to stop the engine a considerable distance from the point of mooring, and drift alongside. This was a difficult operation, and involved con-

sideration of both wind and tide. Watt's discovery, therefore, was momentous, and enabled the steamer to take the pier with precision and promptitude. The incident appears to have occurred at Rothesay quay, and was evidently the first intentional reversing of an engine.

During the five years, from 1815 to 1819, there seems to have been quite a "boom" in steamboat building on the river. Including the "Dumbarton Castle," already alluded to, the construction of twenty-six steamers is recorded. Of these, the most notable was the "Britannia," built in 1815 by John Hunter, Port-Glasgow, and engined by D. M'Arthur, Glasgow. Her principal owner was Archibald M'Taggart, who was also the first distiller in Campbeltown, and great-grandfather of Mr. Dan. M'Taggart, present Procurator-Fiscal at that place.

After trading for a time to Campbeltown *via* Rothesay, she was acquired by Messrs. Alex. A. Laird & Co., of the Londonderry fleet, and was the first steamer owned by that old and energetic firm. She was wrecked at Donaghadee in 1829.

Among the other steamers of the period, the "Caledonia" was sold to go to Hull, the "Argyle" (second of the name) to go to Alloa; the "Waterloo" was re-named "Maid of Islay" in 1825, and the "Neptune" was broken up in 1826.

The construction and equipment of the "Albion" cost £3450. John Kay was her

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master, and his crew consisted of a pilot, two seamen, one engineer, one fireman and two stewards. Captain Kay, who superintended her construction, was long and favourably known on the Clyde, and on his retiral was presented by his owners with a valuable testimonial of their "esteem, gratitude, and approbation."

The "Albion" was a famous boat on the Glasgow and Largs route, but she did not achieve much of her fame through the instrumentality of her speed. So little blessed was she, in fact, with this valuable quality that the boys of Largs and Skelmorlie were often wont, in their youthful glee, to run her races, so to speak, and as they dashed away from her they would toss their caps in the air and shout derisively to her to come on or they would be at the quay before her. Mr. George Riddle, a Largs mason, who died there only a few years ago at an advanced age, was wont to tell how when he was working as an apprentice at a house near the Parish Church of Largs, his master came to him one Saturday morning and told him to run home, wash his face, change his clothes, get his breakfast, and go in the "Albion" to Greenock for money to pay the wages of the workmen. There was no bank in Largs in those days. The lad replied that he could not do all that, as the steamer was already round the Farland Point. "Aye, you can dae that, an' be in *plenty o' time*," the master insisted, on which young Riddle at once

set off to try. True, the toilet of an apprentice mason of those days was not elaborate, nor was it burdensome to count the courses of his breakfast, and Riddle had ample time to catch the steamer.

It is usually supposed that the "Mars" was the only one of the old steamers that came to grief on the shores of Largs, but this same "Albion" was badly damaged on one occasion by drifting on to the top of some rough piles that constituted the face of a rude sort of wharf which occupied the site of the "inner" part of the present harbour. The tops of the piles ripped the bottom out of the steamer, and so serious did her plight become that her regular crew left her.

Her skipper, happily, was a man of courage and resource as well as humour, and pressing a few of his old Largs friends into the service he contrived to patch her up in a way that enabled her to keep afloat till he got her to Greenock, where she was soon made "as good as new."

The "Rothesay Castle,"¹ of 34-horse power, and a speed of about 12 knots, traded first between Glasgow and Rothesay, and latterly between Glasgow, Ardrishaig, and Inveraray. She was then lengthened, re-engined, and sold to Liverpool owners, and in August, 1831, she was lost with a large number of passengers, on the Dutchman's Bank, off Beaumaris.

¹ Captain John M'Kinnon, a well-known figure in his time, was master—his son, Sandy, being Captain Young's successor in the first "Lord of the Isles."

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The "Marion," named after the wife of her owner, David Napier, sailed on the river for one year. She was then taken to Loch Lomond, and was the first steamer to ply on that lake. The "Duke of Wellington" was re-named the "Highland Chieftain" in 1821, and the "Lady of the Lake" was transferred to Alloa in 1828. The "Defiance," built in 1817, was the first steamer on the Loch Goil route. She was re-named the "Highland Lad," and was broken up in 1827. Captain Graham, formerly of the "Comet," was one of the original shareholders of the Loch Goil Steamboat Company, and continued in that trade for over thirty years. When he died, on 11th January, 1849, he was the oldest steamboat master in Europe.

The "Talbot," built at Port-Glasgow in 1819 by John Wood, and engined by David Napier, was the first steamer fitted with feathering floats; but, of course, her apparatus had not the perfection of the present day paddle-wheel.

The "Marquis of Bute" was re-named the "Bangor Castle" in 1825, and crossed to the Green Isle, where she ran as a passenger steamer between Belfast and Bangor.

Second last of the list belonging to this period was the "Post Boy," built at Dumbarton, by Denny, in 1820. She ran between Glasgow and Greenock, and had a connection at Dumbarton with the Loch Lomond tourist route, and she was the first steamer advertised to sail at a regular hour, regardless of wind or

tide. This last fact was due, not only to the increased power of machinery, but to the "Post Boy's" shallow draft (three feet) and to the rapid deepening of the river, which the Clyde Trustees had been carrying on. When the "Comet" began to run, in 1812, though she drew only four feet, she found it necessary to leave both Glasgow and Greenock at or near high water, to avoid taking the ground in the river; and lighters depending on sails, oars, and horse haulage, though they drew no more than four feet six inches, had been known to take six weeks for the trip up the river. There is a tradition, indeed, of one of the steamer captains of this period, who was so anxious about the limited depth of the Clyde, that he would not allow an old woman to draw a stoupful of water till he had passed.

During the same period, another event as vital and significant as the deepening of the river had taken place. The Government had at last begun to take notice of the new means of marine propulsion, and to make regulations in its conduct for the safety of the lieges. In the *Annals of Lloyd's Register*¹ it is noted that as other vessels followed quickly in the wake of the "Comet," a Committee of the House of Commons sat in 1817 to consider means of preventing accidents arising from explosions on board steamboats. As the result of the Com-

¹ Presented by the Chairman and Committee of Lloyd's *Register of British and Foreign Shipping* in commemoration of the Fiftieth Anniversary of the Society.

mittee's investigations, regulations were issued which required steamboats to be registered. Further, in the case of passenger vessels the boilers, which it was thought necessary to prescribe should be of wrought iron or copper, were to be fitted with two safety valves, and to be tested to three times the working pressure, which was not to exceed one-sixth of the pressure the boiler was calculated to withstand.

In 1820, encouraged by the increased facilities for travelling, Messrs. James Lumsden & Son published one of the pioneers of our modern descriptive guidebooks. It is entitled *The Steamboat Companion and Strangers' Guide to the Western Islands and Highlands of Scotland*. Its description of the scenery of Loch Lomond, the River and Firth of Clyde, the West Highlands and Hebrides, with the antiquities, traditions, and natural history of each locality, displays an accuracy quite equal to that of similar books of the present day. In a footnote to the description of Loch Lomond it informs the reader of the means of conveyance:—“The ‘Post Boy’ steamboat leaves Glasgow every morning, at 6.0 o'clock, with passengers for the ‘Marion,’ plying on Loch Lomond, and lands them at Dumbarton, five miles from Balloch, from whence the ‘Marion’ starts every day, at 10 o'clock. The ‘Post Boy’ again takes them up on their return to Dumbarton, at 6 o'clock in the evening; so that by this conveyance a stranger can leave Glasgow in the morning, visit the beautiful scenery of Loch

Lomond, and be again at Glasgow, in 14 hours. A coach runs from Dumbarton to Balloch, for the convenience of passengers by the 'Post Boy,' and again brings them back to meet the boat in the afternoon." The book also contains a list of twenty-three steamboats plying on the river and Firth of Clyde, with their date of building, tonnage, horse-power, and draft. A list of the fares charged is given on p. 36.

As Lumsden's little *Companion* is now somewhat scarce, and important changes have taken place upon the river banks since 1820, it may not be amiss to quote the description of the sail from Glasgow to Greenock at that period :

"The first object that comes in view is the village of Govan, not inelegantly situated among surrounding trees; having previously passed the Verreville Glasswork, Geddes; and Finnieston Village, Stobcross, Phillips; and York Hill, Gilbert.

"At Govan there is a regular ferry to the confluence of the Kelvin, a beautiful stream, originating in the Campsie hills, and has its course diversified by various falls and windings, while its banks are adorned by numerous elegant villas and plantations, tastefully laid down. Opposite to Govan are the village and city Mills of Partick, and near it the ruins of a mansion formerly occupied by the archiepiscopal prelate of Glasgow, which, before the introduction of manufactures and commerce rendered the banks of the Clyde and Kelvin so

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TABLE OF FARES FOR THE PASSAGE STEAM BOATS ON THE RIVER CLYDE.

FROM	RENFREW.		DUNGLASS.		PORT-GLASGOW AND GREENOCK.		GOUROCK.		LARGS.		MILLPORT.	
	Cabin.	Steerage.	Cabin.	Steerage.	Cabin.	Steerage.	Cabin.	Steerage.	Cabin.	Steerage.	Cabin.	Steerage.
GLASGOW To GREENOCK " LARGS " ARDROSSAN "	s. d. s.	s. d. s.	s. d. s.	s. d. s.	s. d. s.	s. d. s.	s. d. s.	s. d. s.	s. d. s.	s. d. s.	s. d. s.	s. d. s.
	1 0 1	0 1 0	2 0 2	0 1 6	4 0 4	0 2 6	4 6 3	0 3 0	7 6 5	0 8 6	6 6 0	0 6 0
	3 0 2	0 2 0	2 0 2	0 1 6	4 0 4	0 2 6	1 0 0	0 6 6	3 6 2	6 4 6	3 6 3	6 6 6
	6 6 4	0 5 6	3 6 3	6 3 6	6 0 6	0 2 6	3 0 2	0 6 4	2 6 2	6 1 0	1 0 1	0 1 0
FROM	ROTHERSAY.		ARDROSSAN.		TROON.		AVR.		HELENSBURGH.			
	Cabin.	Steerage.	Cabin.	Steerage.	Cabin.	Steerage.	Cabin.	Steerage.	Cabin.	Steerage.		
	s. d. s.	s. d. s.	s. d. s.	s. d. s.	s. d. s.	s. d. s.	s. d. s.	s. d. s.	s. d. s.	s. d. s.		
	7 6 5	0 5 0	10 0 7	6 11 0	8 0 6	0 8 0	12 0 9	6 6 6	4 6 3	0 1 0		
GLASGOW To GREENOCK " LARGS " ARDROSSAN "	s. d. s.	s. d. s.	s. d. s.	s. d. s.	s. d. s.	s. d. s.	s. d. s.	s. d. s.	s. d. s.	s. d. s.		
	3 6 2	6 6 0	5 0 5	0 6 0	7 0 7	0 6 0	8 0 8	0 6 6	1 0 1	0 1 0		
	1 6 1	0 2 6	2 0 2	6 3 6	2 6 1	6 2 6	4 6 3	6 6 1	0 1 0	0 1 0		
	1 6 1	0 2 6	2 0 2	6 3 6	2 6 1	6 2 6	4 6 3	6 6 1	0 1 0	0 1 0		

Young People, from eight to fourteen years of age, to pay half fare; below eight, at the discretion of the respective masters.
 A Passenger to be allowed to take on board two stones weight of luggage; for any above that weight, to pay at the rate of
 Tenpence per cwt. from Glasgow to Greenock, and proportionally for any farther distance.
 The Proprietors are not to be responsible for any Luggage or Parcels put on board.

populous, must have been a situation of beauty and comfort ; to both of which advantages the clergy of former times were not indifferent.

“ Proceeding along, many villas, the residence of opulence, and the efforts of industry, are to be seen on both sides of the river, and a few miles from the city the view becomes more extensive.

“ On the right, 1 mile from Govan, is Broomhill, Perston ; and $1\frac{1}{2}$ mile farther on the left, Linthouse, Watson ; on the same side, but more distant, Shieldhall, Oswald ; and on the right, also at some distance, Jordanhill, Smith ; on the plain below it, about $1\frac{1}{2}$ mile further on, Scotstoun, Oswald ; opposite, on the left, Braehead, McCall ; and 1 mile further, Elderslie House, the elegant mansion of Spiers ; a short way forward, on the same side, the town of Renfrew, an ancient burgh, near which once stood a palace of the first Stewart monarchs. The old church still contains some antique statues, and near the town is a tumulus, reared to commemorate the defeat of Somerlid, thane of Argyle, by Angus, in 1164. At Renfrew, there is a regular ferry, where carriages and horses are safely crossed, 3 miles distant from Paisley. On the opposite side, Yoker Lodge, Bennet ; and on the left, 1 mile further, is Renfield, Campbell of Blythwood, a superb modern house ; a short way on the same side, is the mouth of the Cart River, looking up which is seen Inchinnan Bridge, at its junction with the Gryffe ; and, at 3 miles distance, the town

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of Paisley and Gleniffer Hills ; near this bridge is a stone, placed where the gallant Marquis of Argyle was taken, in 1685 ; at the mouth of the Cart once stood the palace of Inchinnan, a royal residence, of which there remains no vestige, and the site is now that of a farm steading. Here is a small island called New-shot, so named from its recent appearance, being formed of mud and alluvion. A little on, in the high ground, at a distance, is Cockney, Hamilton. Here a great extent of Dunbartonshire comes into view. On the right, 2 miles on, the Alkaline Works of Lord Dundas ; Dalmuir House, and Paper Mills, Collins ; the most extensive paper works in Scotland. Auchentoshan, Cross, and Mountblow, Bowie ; a little further on, at some distance, in a valley, Duntocher Cotton Mills, Dunn. Almost opposite, on the left, Park, Fulton ; 1 mile further, North Bar ; and near the water, the house which belonged to, and where Peggy, the *enfant trouvé* of Ramsay's Gentle Shepherd, was born. One mile distant, on the right, is Erskine Ferry, and near it, Dalnotter Hill, from which is a charming view down the Clyde. Beyond this is the Church and Village of Kilpatrick, said to be the birth place of the tutelar saint of Ireland. Not long since the old church was taken down, after having stood for several centuries ; and on its site the present one was erected. Many tombstones of great antiquity are to be seen in the cemetery. At Duntocher, about two miles to

the right, there is still to be seen a Roman bridge, perfectly entire, near the line of the Roman wall.

“Here suddenly bursts upon the sight one of the most admirable prospects perhaps in the world. In front, the Clyde expands to a noble breadth, bounded on the north by the steep and wooded hills of Kilpatrick, and on the south by the sloping hills of Renfrewshire, while the castles of Dunglas and Dunbarton jutting into the sea, with the lofty mountains of Argyle in the distance, form a picture, which, for richness and variety, is rarely to be contemplated.

“Nearly opposite, on the left, is Erskine House, formerly the property of the Earls of Mar, now that of Lord Blantyre; further on, 1 mile, on the right, is Glenbuck, Robertson; and near it is Bowling Inn and Bay, where the great canal from the Forth joins the Clyde. It is in contemplation to carry a branch of the canal from this place to Dunbarton, so as to render the navigation more certain, as the Clyde above Dunbarton is only passable at high water, whereas vessels can reach that town at any time of the tide. A mile further on is Frisky Hall, Smith; and Auchentorlie, Buchanan. Here, on a rocky promontory, stand the ruins of Dunglas Castle, a Roman Station, anciently the western termination of Antoninus' wall, which extended from Blackness Castle, on the Firth of Forth, nearly in the line of the canal; and no situation could more ap-

propriately have been chosen for such a stronghold. Dunglas might still have been a fortress in the delightful landscape now before us had it not been blown up, in 1640, by the treachery of an English boy, and nearly reduced to the state in which, at present, it appears. On the left, at a distance, is the Church and Manse of Erskine; and 1 mile further, Bishopton House, Sir J. Maxwell; and close to it, Drums, King; opposite, on the right, Little Mill Bleachfield, and Milton, Mitchell; and, behind it, Dumbuck Hill. Having passed Dunglas Castle, the most prominent and striking object is Dunbarton Rock and Castle; behind which is the sloping point of Rosneath; to the left, the town and shipping of Port Glasgow and Greenock; and, dimly rising in the distance, the blue mountains of Argyleshire appear.

"Here, if the weather be clear, a fine view of Ben Lomond is to be obtained along the valley of Leven; with the relative situation of its kindred lake.

"The Steam Boats, in passing Dunbarton Castle, generally keep so close to it, that a pretty accurate view may be had. The difficulty and danger that must have attended the building of the walls will be evident; and though apparently inaccessible, it was taken, by escalade, in 1551,¹ an exploit hardly credible, when the fortress is examined. On the highest

¹The writer of the *Companion* probably refers to the romantic capture of the stronghold by Crawford of Jordanhill and the Laird of Drumquhassel in 1571.

pinnacle of the rock, are the remains of a building, supposed of Roman origin, or more probably of Celtic formation, which must have been an alarm tower, or watch beacon, to communicate intelligence to a distance. Behind the castle stand the town and glass works of Dunbarton, to be noticed afterwards.¹

“Opposite the castle, on the left, West Sea Bank; and beyond the castle, on the right, Leven Grove, Dixon; on the left, 2 miles further on, Finlayston, Campbell; on the right, Clyde Bank, M'Kenzie; and 1 mile further, Clyde Cottage, Graham; about 2 miles further, on the left, Broadfield, Crawford; on the right, and 1 mile distant, Cardross Village, Church and Parsonage, and the ferry of Craigend; opposite on the left, Parklee, and Carnegie Park; and near the town and harbour of Port Glasgow, is the venerable ruin of Newark Castle, the former residence of a noble family of that title, now the property of Lord Belhaven.

“Port Glasgow was built upon land acquired by the city of Glasgow, in 1667, from the barony of Newark, and endowed by charter from Charles II. From its vicinity to Greenock, the erection of this port may appear superfluous; but it took place from a dispute betwixt the merchants of Glasgow trading across the Atlantic, and those of Greenock, regarding

¹ In a later chapter the writer says, “The town of Dunbarton has nothing in it to claim the notice of a traveller, unless it be an extensive Glasswork. Situated on the banks of the river Leven, it is, during stream tides, nearly surrounded with water, which flows up the river to a considerable distance.”

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harbour dues, which induced the former to establish this as an independent harbour of their own.¹ Two miles further, on the right, is the hill of Ardmore, Giles, a peninsulated hill, rising abruptly from the water; a little above which, is Camus Eskan, or Colgrain, Denniston; two miles north of which is Kil-



PORT-GLASGOW

mahew Castle and Drumfork House. In the centre of an extensive bay to the north, stands the village of Helensburgh, round which are many gentlemen's seats.

"After a sail of about two hours and a half from Glasgow, the Steam Boats arrive at

¹In the first place the magistrates of Glasgow approached Dumbarton with a proposal to acquire land and construct a harbour there; but the suggestion was declined, on the ground that the great influx of mariners and others would raise the price of butter and eggs to the inhabitants.

Greenock. This town has of late years become one of the most considerable sea ports in the kingdom; and from the recent formation of quays and docks, very large vessels can now be received into them. The town, though somewhat handsome and regularly built, has nothing particularly attractive, unless it be the new



GREENOCK

customhouse, near the quay, which is an elegant building. The town, however, abounds in good inns, which are not inferior to the best in the kingdom. The trade is great, from all parts of the world, and ship building, and various important manufactures are carried on to a large extent."

CHAPTER III

EXCURSIONS, ENTERPRISES, AND DISASTERS

DURING the twenties thirty-four steamers were built. Of these the "Comet" No. 2 is the most memorable, on account of the tragedy which ended its career as a passenger boat. William Thomson, civil engineer, in a letter printed in Morris's *Life of Henry Bell*, after describing the wreck of the older "Comet," says: "A new boat was at this time determined on, towards which the gentlemen of Lochaber gave their warm support by taking shares, not less from the advantage seen to accrue to themselves and to the country, than from the great merit and encouragement due to Mr. Bell. I had the pleasure of obtaining some subscribers for him, among others, Neil Malcolm, Esq., of Poltalloch, paid a £50 share, and I rather think his lady did the same, liberally leaving the money in Mr. Bell's hands." Alas! like most of the enterprises in which Bell was personally concerned, the new boat was to prove unfortunate. Built in 1821 by James Lang of Dumbarton, and engined by D. M'Arthur & Co., she

was provided with a copper boiler, and was employed in the West Highland trade, *via* Rothesay and Crinan Canal, till 21st October, 1825.

About midnight of that date, while on a voyage from Inverness to Glasgow,¹ she collided with the steamer "Ayr," Captain M'Clelland, off Gourock, and sank in three minutes in 17½ fathoms with seventy of the passengers. The Captain, M'Innes, and five of his crew were saved through their own exertions, under almost miraculous circumstances. The disaster was due to the carelessness of those in charge, who had not exhibited a proper light. As some said at the time, "the awful calamity might have been prevented by the placing of a penny candle in the bow of each steamer." As it was, the loss of life might have been less, but the "Ayr" steamed away, and left the unfortunate souls on the doomed vessel to their fate—an unpardonable offence which is rarely heard of in the history of British shipping. In palliation of this conduct, it should be said that the "Ayr" reached Greenock harbour in a sinking state.

Among the passengers drowned were Captain Wemyss Erskine Sutherland and Sarah Duff, his wife. They had been married at Inverness only seven weeks previous. When all hope of the vessel being kept afloat was abandoned, the gallant captain clasped his wife and leapt

¹ The Caledonian Canal had been opened in an incomplete state in 1822.

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into the sea, but unfortunately they did not reach the shore, although the Captain was a powerful swimmer. His body was recovered three days before that of his wife. They were interred together on the 29th October at the Episcopalian Chapel, Glasgow, with military honours.

A touching incident occurred in the case of Jane Munro, one of the saved. She was rescued by the efforts of a dog. The faithful companion remained by her insensible body after it was taken in charge, but was unwittingly driven away. Although, after her recovery, the young lady made every effort to find the dog, no trace of it could be discovered. The wreck was raised in the following July by Brown of Aberdeen, and among the effects recovered were the accoutrements of Captain Sutherland, a silver teapot, which had been one of his wife's wedding presents, and a parcel of notes amounting to £1,000, known to have been in possession of Mr. Rollo, W.S., Edinburgh, one of the drowned. After being raised, the "Comet" was converted into a sailing craft, and continued in the coasting trade till 1876.¹

The following letter from Henry Bell with reference to the accident appeared in the *Glasgow Free Press*, suggesting regulations which are similar in many respects to those of the present day :—

¹ The disaster to the "Comet" ended the steamship enterprise of Henry Bell. A subscription was raised for him, and the Clyde Trustees bestowed on him an annuity of £100, which they continued to his widow. He died at Helensburgh in November, 1830.

“SIR,

“The dreadful accident which took place between the “Comet” and the Ayr steamboat on the 21st October, by which the former was run down and a great many lives lost, makes it necessary that some steps should be taken to prevent in future, as far as possible, such accidents taking place, by carelessness or mismanagement. As I have had the honour of bringing steam vessels into practice in Great Britain, as well as other countries, I would beg leave to suggest what would, I conceive, be an improvement, and for the safety of the lieges.

“1st. I would recommend a bill to be brought into Parliament, laying down a proper code of laws and regulations for the management of those steam vessels. I have had such experience in steam navigation, and have made it my study to observe and watch over all its movements; and I now plainly see that it is absolutely necessary for the interests of all concerned, that the legislature should interfere, as the present accident, as well as that which formerly occurred, was entirely through carelessness. In these laws it is by no means to be wished that commerce should be fettered with unnecessary expenses or delays; and I would suggest what I conceive would answer all the purposes required. I would recommend that each steamboat should be licensed and numbered, as stage coaches; and, in these licenses, that the tonnage of the vessel, and number of horse power of the engine, should

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be inserted, the expense of the license not to exceed one shilling per horse power, on a stamp of five per cent. on the value of the license.

“ 2nd. That all steam vessels at or under twenty horse power be restricted not to carry on board, at one time, more than forty passengers (children from six to twelve years of age to count as one half passenger), each passenger to be allowed 56 lbs. of luggage ; and all steam-boats upwards of twenty horse power to be at liberty to carry one passenger more for each horse power above twenty. Thus, a boat of fifty horse power would be licensed to carry seventy passengers, independent of the crew ; licenses to be taken out annually.

“ 3rd. That these vessels be navigated by experienced seamen for captains, pilots, mates, etc., and should also have experienced engine-keepers ; of which the proprietors must produce certificates, and for whom they should be responsible ; and these people's names should be indorsed on the license.

“ 4th. That those steam vessels be at least furnished with two lights, one at the bow and one at the masthead, to be put up at one hour after sunset, and properly attended to ; also an alarm bell, at night, attached to the engine, and a proper watch kept ahead with a speaking trumpet, to direct the steersman of the vessel.

“ 5th. That all steam-boats meeting each other give way to the larboard side ; and all steam-boats, when overtaken by a swifter one, do the same, and allow them to pass on their

starboard side by stopping their engines as soon as the one overtaking them comes within thirty feet of their stern ; and all sailing vessels to give a sufficient berth for steam-boats passing with freedom ; not being properly attended to, has formerly caused the loss of lives.

“ 6th. That a general inspector be appointed for examining each steam-boat and engines, machinery, etc., whose certificate will enable them to get their licenses, having power to appoint competent deputies at each proper station, and who may call in proper judges to decide upon any disputed point between the proprietors and inspectors ; the salaries to be paid from the licenses.

“ A great number of other regulations might be suggested, regarding accommodations at harbours, ferries, etc., which might be introduced in the said bill ; and I hope the few hints I have thrown out, or such like, will show the public the necessity of some better regulations being immediately adopted.

“ I remain a friend and well-wisher to the good of my country and safety of my fellow-creatures.

“ HENRY BELL.

“ Helensburgh Baths, 25th October, 1825.”

The “ Leven,” built in 1823 by William Denny, Dumbarton, was the first steamer engined by Robert Napier, who was ably assisted by David Elder, father of the celebrated John Elder, late of Fairfield.

The engine of the "Leven" was of the side-lever type. It proved its efficiency by working out two wooden hulls, the second being that of the "Queen of Beauty," and it can still be seen standing as a monument at the head of Dumbarton pier.



'LEVEN'S' ENGINE

The tools which sufficed for executing the work of an engineering shop in those days would astonish engineers of the present time. A few ten to fourteen inch turning lathes, with wooden shears and narrow pulleys, and belts which were constantly slipping, a rude horizontal boring mill, and a smaller vertical boring machine—these constituted the greater part of the plant.

The "Leven" sailed regularly between Glasgow and Ayr, and the following advertisement, showing how an excursion was arranged, is not without interest :

Pleasure Excursion.

The "LEVEN" Steam-Packet will sail from Dumbarton on Friday the 10th day of August current, at 8 o'clock morning, calling at Port Glasgow, Greenock, Gourock, Largs, Ardrossan, Irvine, Troon, and Ayr. At the latter place she will remain that night, giving passengers ample opportunity for viewing Burns' Cottage, his Monument, the auld Brigg o' Doon, and Alloway Kirk ;—and on Saturday morning will proceed (weather permitting) round the Craig of Ailsa, so as to give passengers a near prospect of that stupendous Natural Curiosity ; and return to Dumbarton in good time in the evening.

Fares—Going and Returning, First Class, 7s. ; Second, 5s.

7th August, 1827.

Dumbarton Printing Office.

It was at this period that the watering-places on the shores of the Firth began to develop. With the increasing facilities of access afforded by the new steam vessels some of the shrewder of the Glasgow people began to foresee the possibilities of the shores of the Firth for summer residence. Thus, in 1822, James Ewing, M.P.

for Glasgow, began to build the marine villa known afterwards as the Castle House of Dunoon. The taste which he displayed in its erection and in the laying out of its grounds attracted others to the place, till in a short period it grew from a hamlet of not more than three or four slated houses, with a parish church and manse, to a place of considerable resort, and has since developed into a town with a permanent population of 6,779 persons.

Of such pioneers the most enterprising and energetic was David Napier, already referred to as the maker of the boiler for the first "Comet," and builder of the engines for the "Talbot" in 1819. He had already, as we have seen, been the first to put a steamer on the waters of Loch Lomond. He now entered upon a larger undertaking. He purchased land on the north shore of the Holy Loch, then in a state of nature. He built the hotel and pier at Kilmun, formed a road to Loch Eck, and opened up that route as a new means of access to the Western Highlands. He ran the steamers "Venus," "Loch Eck," "Kilmun," and "St. Mun" regularly between Glasgow and Kilmun. From that place he ran a steam carriage on his new road to Loch Eck. Passengers were transported along the narrow waters of this inland loch on a little steamer, the "Aglais." And from Strachur, on Loch Fyne, he had another steamer to convey them to Inveraray. Napier was, indeed, the first to

boom the coast traffic, and though his steam carriage ceased to run, the shrewdness of his enterprise is testified by the fact that the Loch Eck route remains one of the routes most favoured by tourists at the present day.

It was in connection with the little "Aglaia" on Loch Eck that Homish M'Lean, afterwards of the "Vulcan" and "Marquis of Bute," and a well-known figure on the Clyde, first came into repute. M'Lean seems to have been a "character" from his earliest days, and many amusing stories are told of him. He was boy on the Loch Eck boat, when one day a hitch occurred with the machinery. The engineer had been re-jointing the cylinder cover, and when he started the engine again he could not get it over the centre. The quick eye of Homish discovered the cause, and pointing to the cylinder, he told Mr. Napier, who was himself puzzled at the difficulty, that "the pot lid," meaning the cylinder cover, was on the wrong way. This little incident seems to have been the beginning of M'Lean's fortune.

In 1820 the "Inveraray Castle," No. 2, was built, and in 1822 the "Toward Castle," the former by Wood and the latter by Denny. Both were employed between Glasgow and Inveraray, calling at Greenock, Rothesay, Tarbert, and Ardrishaig. Undernoted is a copy of the advertisement :

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REGULAR CONVEYANCE

To Inveraray every lawful day, and Arran every Tuesday and Saturday.

AT GLASGOW,

The Royal Mail Steam Packets,

"DUNOON CASTLE,"	-	-	-	Captain Johnston.
"INVERARAY CASTLE,"	-	-	-	Captain Thomson.
"ROTHESAY CASTLE,"	-	-	-	Captain Adam.
"TOWARD CASTLE,"	-	-	-	Captain Stewart.

The above Packets will Sail as under—calling at Port-Glasgow, Greenock, Gourock, Dunoon, Rothesay, Tarbert, and Lochgilphead.

The "Rothesay Castle," on Tuesday morning, May 19.

The "Dunoon Castle," on Wednesday morning, May 20.

The "Rothesay Castle," on Thursday morning, May 21.

The "Dunoon Castle," on Friday morning, May 22.

The "Rothesay Castle," on Saturday morning, May 23.

The "Dunoon Castle," on Monday morning, May 25.

For Brodick and Lamlash, Island of Arran.

The "Toward Castle," on Tuesday morning, May 19.

The "Inveraray Castle," on Saturday morning, May 23.

Hours of Sailing will be seen on the Boards.

One of the above Packets sails from Glasgow to Inveraray, and one sails from Inveraray to Glasgow, every lawful day; and from Glasgow to Arran every Tuesday and Saturday, leaving Arran for Glasgow every Wednesday and Monday; and to and from Rothesay daily.

One of the Packets sails from Rothesay for Greenock every Sunday morning, at half-past eight o'clock, with the Mail; and leaves Greenock for Rothesay same day at eleven o'clock forenoon.

NOTICE.—Families frequenting the Watering Places to which these Vessels ply, will be supplied with Tickets on terms as low as any other Vessel going that way, and they will have the liberty of Sailing in any of the four Castles.

Tickets to be had only of Mr. David M'Donald, Jeweller, No. 134 Trongate.

NOTICE.—Any person putting whisky or other illicit goods on board will be prosecuted.

ESTIMATES WANTED for supplying the above Steam-Packets for One Year with the best Hard Coals, commencing on the 1st June next. Those wishing to contract for the same must give in their offers on or before the 25th instant, to Alexander Ure, writer, 26 Glassford Street.

A STEWARD WANTED for one of these Vessels. None need apply but those that can be well recommended for sobriety and ability. Certificates to be lodged on or before the 21st instant with

JAMES M'INTOSH,
99 Main Street, Gorbals.

Glasgow, 16th May, 1829.¹

About this period, six steam packets sailed daily between Glasgow and Helensburgh, and about 30 steamers daily for ports on the river and Firth, sailing every hour to Dumbarton, Port-Glasgow, Greenock, Gourock, Rothesay,

¹ The above is a copy of an advertisement at present in the possession of a steamboat master in Glasgow.

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Largs, Millport, Ardrossan, Troon, and Ayr. The Largs and Millport steamers extended their journey every Saturday to Brodick and Lamlash, and returned on the Monday. There was, however, in addition a daily service between Ardrossan and Arran.

The following is a quaint account of a pleasure excursion made by the steamer "Largs" in 1827. It is probably the earliest existing account of a trip, which at that time would be considered a novelty and an event of no little importance.

"Late in the evening of 6th curt., the Steam Boat 'Largs' came in here, having been hired by the Kilmarnock Arran Club, and next morning, at six o'clock, the Club, to the number of fifty or sixty, with an instrumental band, sailed in her for Brodick, which place they reached between eight and nine o'clock.

"Here several of the gentlemen landed, whilst the 'Largs' with the remainder stood off, passing eastward of Holy Isle, by Pladda, for Ailsa Craig. This they reached about twelve, and spent some time going clearly round the rock, after which they returned inside of Holy Isle, through Lamlash Bay, and landed at Brodick at four o'clock.

"They were now joined by a number of the islanders, and about seventy sat down to dinner under a shade erected for the purpose, *super prato viridi*.

"The band meantime, stationed on the green, played national airs: some glee and duet singers

attending on purpose, gave several excellent songs, many appropriate toasts were also given, and, at eight, the party broke up, and sailed for Troon, which place they reached between ten and eleven o'clock. They experienced the utmost attention from Mr. Kay, commander of the 'Largs,' and were well satisfied with his vessel, which is a capital sea boat, and with his steward, and his various accommodations.

"Troon, 24th July, 1827."

Towards the end of the twenties, the river steamers seem to have been included in the regatta programme of the Northern Yacht Club. The course was from Rothesay Bay to a mark off the Greater Cumbrae and back, and the first to win the cup was the "Clarence," on 2nd August, 1827. The "Helensburgh," Captain John Turner, made a good second. The cup is now in the possession of Mr. Napier, iron merchant, Oswald Street, Glasgow.

Eight years later the appearance of the river steamers at these regattas ended in a tragic manner. On 24th July, 1835, the "Clarence" was preparing for another race (but not for the cup) when a terrible boiler explosion occurred on board one of her rivals, the "Earl Grey," at Greenock quay. By that explosion six persons were killed and about a score injured, and from that day no record appears of steamers taking part in the regattas. It was never ascertained how the accident occurred. The engineer in

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charge of the "Earl Grey" was tried at the Circuit Court, but was found "not guilty." Probably the cause of the accident is to be found in the usage of the time. In those days one of the duties of the trimmers was to pass the orders from the captain to the engineer, and to regulate the safety-valve weights accord-



'CLARENCE'

ingly. This complicated arrangement no doubt frequently led to undue boiler pressure, and occasionally to an explosion, which caused the Clyde Trustees to issue the following notice and letter:

"The Parliamentary Trustees on the River Clyde hereby offer a premium of 100 guineas to any person who shall in the opinion of the Trustees or of a committee of their number

within 1 month of this date essay or furnish the best practical mode of effectually preventing accidents from the imperfect construction or use of the Steam Engine or Gearing of Steam Vessels in their navigation upon navigable rivers and of carrying the same into permanent effect or execution, independent of the control or discretion of the Master or Crew of the vessel.

"The Trustees have also placed at the disposal of a committee of their number £100 to be distributed among such scientific or other persons as may be unsuccessful competitors for the above premium, but who may nevertheless suggest such improvements upon the plan of the successful competitors as in the opinion of the committee may be beneficially adopted or ingrafted upon the said plan.

"Sealed plans, descriptions, or specifications to be lodged in the hands of the Town Clerks on or before the 10th October, 1835.

"COUNCIL CHAMBERS,
"GLASGOW, 14th Sept., 1835."

"Council Chambers,
"Glasgow, 8th Feby., 1836.

"SIR, "The Trustees on the River Clyde shortly after the accident which happened on board of the "Earl Grey" Steam Boat at the Harbour of Greenock, appointed a committee of their number to offer by public advertisement a premium of 100 guineas to the person who should furnish the best specification and description of the most effectual mode of preventing

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such accidents on board of steam vessels in future.

"In consequence of that advertisement a considerable number of plans have been lodged with the committee for the above premium, and as the Trustees are desirous of obtaining the assistance of scientific gentlemen in considering the merits of the several plans, they have directed me to ascertain whether you are willing to give your opinion on the plans as one of the gentlemen to whom that committee have resolved to submit them, before awarding the Premium to the successful Competitor.

"I am, &c.,

"Sgd. A. TURNER,

"Secretary to the Trustees.

"To ROBERT NAPIER, ESQ., Glasgow.

"JAMES SMITH ESQ., Deanstone.

"D. MACKAIN, ESQ., Glasgow."

"Report given in reply to the foregoing :

"Notwithstanding the above theories advanced by the competitors and also of several others promulgated by persons of high standing in the scientific world, we cannot after a careful comparison between their reasoning and our own experience arrive at any other conclusion than that the explosion of steam boilers proceed from a gradual accumulation of steam which being deprived of sufficient means of escape is by the continued action of the fire in the furnaces raised to a dangerous and often destructive degree of density, and we can conceive

that all danger can be avoided by the regular action of the common safety valve if properly constructed, and made of sufficient capacity. It sometimes happens that these valves from neglect become fixed, and we are of opinion that the apparatus designed by Essayists Nos. 2 and 41, which are drawn as figures A. and B., are well calculated to apply a force in addition to the strength of the steam. To overcome this adherence and they have the advantage of being so designed that after the overplus of steam shall have escaped, the safety valve is allowed to resume its useful position.

“We have remarked that the greater number of explosions of steam boilers have occurred at the instant of starting the engine. Without taking on ourselves to assign any reason for this or our being able to trace the immediate circumstances which precede and may have caused the explosion, we are of opinion that the risk of accident may be lessened by the weight on the safety valve being diminished until the engine is in motion, and the steam flowing away by a regular current.

“In compliance with this instruction we have no hesitation in recommending to you the plans marked by the committee, Nos. 2 and 41, lodged by Mr. James B. Neilson and Mr. George Mills, both of Glasgow. It will be evident on inspection that they are identical in design, and that the difference in their proposed construction is quite immaterial.

“You are further pleased to request that we

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should name the three persons who have brought forward in your opinion the three next best plans, so as to enable the Trustees to consider whether any portion of the additional sum of £100 allocated by the Trustees as in the circumstances fairly and justly due to any of the competitors who may be unsuccessful in obtaining the principal premium of £100.

“From the extreme similarity in design and execution of the plans which appear to us entitled to rank in the second class, we are unable to reduce their number to less than four, viz., those numbered by the committee, 4-38-55 and 56, which were severally lodged—the three first by Messrs. Allan Clarke and David Thompson of Glasgow, and Mr. John Baird of Shotts, and the last, the joint production of Messrs. Wm. Neilson, and Wm. Muir of Glasgow.

“Signed,	R. NAPIER.
„	JAS. SMITH.
„	D. MACKAIN.”

The “Helensburgh,” previously referred to, was built by William Denny in 1825, and was engined by Robert Napier. Her owners were the Glasgow, Helensburgh, and Roseneath Steamboat Company; Captain Alexander M’Leod was her master, and she was considered a clipper in her time. The machinery consisted of a side-lever of 52 horse power, which was the first single engine to be fitted with two eccentrics, one for ahead and the other for astern. She was sold in 1835 to sail

between Liverpool and Woodside, and in 1845 was broken up at Birkenhead.

Before the close of 1830 the Clyde steamboat masters had evidently become a body to be reckoned with, and the following copy of a minute of meeting preserved serves to show the position and action they felt themselves entitled to take¹:—

“At a meeting of steam boat masters held in Muir’s Hotel, Broomielaw, Glasgow, 3rd December, 1829, to take into consideration a letter received by Mr. Peter Grahame from James Turner, Town Clerk of Greenock, on the subject of Harbour accommodation at Greenock. Present—Mr. Peter Graham, of “St. George” and “Oscar”; Mr. John M’Arthur, of “Ayr”; Mr. Daniel M’Leod, of “St. Catherine”; Mr. Archd. Adam, of “Rothesay Castle”; Mr. Peter Turner, of “Ben Lomond”; Mr. John Niven, of “Albion” and “Largs”; Mr. Robert Douglas, of “Waverley”; Mr. James Henderson, of “Sultan”; Mr. James Johnston, of “Dunoon Castle”; Mr. Alex. M’Leod, of “Helensburgh”; Mr. John Turner, of “Clarence”; Mr. Wm. MacIntyre, of “Countess of Glasgow.”

“Mr. Peter Graham was called to the chair, when it was resolved—

“First. That the following masters be appointed a committee to wait on the trustees of

¹The original minute was obtained from Miss Graham, Gourrock, daughter of Captain P. Graham.

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the harbour of Greenock on the subject of harbour accommodation for passage steam boats at Greenock, namely :—Mr. Peter Graham, Mr. James Johnston, Mr. James Henderson, Mr. Robert Douglas, Mr. Alex. M'Leod, Mr. James White, any three of whom to be a quorum.

“Second. That there is evidently a want of harbour accommodation for the passage steam-boats carrying passengers on the River and Firth of Clyde, and, therefore, that three lengths of ordinary boats four hundred feet from the feued ground above the lighthouse and westward be appropriated for this exclusive purpose, and, in order to effect this, that the trustees appoint a person duly qualified, with full power to see this regulation carried into effect.

“Third. That the committee be appointed to represent to the trustees the great danger and inconvenience that frequently arises in taking the new East Harbour with gales of wind from north to east from the great quantity of timber allowed to remain in that harbour, and from the number of small vessels that come to an anchor inside of it, and to urge upon the trustees the necessity of causing this obstacle to be removed. (Sgd.) PETER GRAHAM.”

Lumsden's *Steamboat Companion* for 1828 gives the following list of steam vessels employed in the trade of the Clyde in that year :—

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- To Rothesay, Campbeltown, and Londonderry—"Eclipse," 104 tons; "Britannia," 73 tons; "Londonderry," 102 tons.
- To Rothesay and Inveraray—"Inveraray Castle," 70 tons; "Dunoon Castle," 79 tons; "Rothesay Castle," 74 tons; "Toward Castle," 79 tons; "George Canning," 80 tons; "James Euing," 77 tons.
- To Tarbert—"Maid of Islay," 78 tons.
- To Stranraer—"Dumbarton Castle," 81 tons.
- To Ayr—"Ayr," 75 tons.
- To Campbeltown—"Argyle," 72 tons; "Duke of Lancaster," 91 tons.
- On Loch Lomond—"Marion," 35 tons; "Lady of the Lake."
- To Largs, Ardrossan, Millport, and Irvine—"Albion," 64 tons; "Countess of Glasgow," 83 tons; "Largs," 83 tons.
- To Greenock, Gourock, and Helensburgh—"Robert Bruce," 48 tons; "Caledonia," 57 tons; "Sovereign," 68 tons; "Sultan," 69 tons; "Waverley," 55 tons; "Helensburgh," 88 tons; "Clarence," 70 tons; "Bangor Castle," 36 tons.
- To Lochgoilhead and Arroquhar—"St. George," 72 tons; "St. Catherine," 73 tons; "Oscar," 37 tons.
- To Inverness—"Highland Chieftain," 53 tons; "Ben Nevis," 44 tons; "Highlander" (to Skye), 51 tons; "Maid of Morven," 52 tons.
- To Dumbarton—"Leven," 54 tons; "Dumbarton," 36 tons; one building.
- Between West Loch Tarbert and Port Askaig, Islay—"Maid of Islay," 140 tons.

With regard to the Islay steamer, a story may be given which was told by the late William Henderson, of Kirn, and which serves to illustrate the feelings with which the advent of the new power, "walking upon the waters," was regarded by the natives of the Hebrides. Henderson was steward on board the first steamer which sailed to Islay. The natives

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had heard of the marvel, but when it arrived they showed some reluctance to come near it. When they did summon courage enough to approach, one of them at any rate got his worst fears confirmed. Henderson had a pet monkey on board, and when this man, who had never seen either a steamer or a monkey before, got his eye upon the latter, he fairly turned tail, and crying out "Mac-an-diabhol! Mac-an-diabhol!" fled to the hills, telling all he met that the Devil was on board making the steamer go.

CHAPTER IV

INVENTIONS AND DEVELOPMENTS

FROM 1830 to 1839 was a period of immense development and of many improvements, both in the steamers themselves and in the watering-places to which they plied. During that decade no fewer than fifty-four vessels were built for the passenger traffic. An idea of the rapid development of the industry may be formed from the following list of steamboats given in Fowler's *Commercial Directory of the Lower Ward of Lanarkshire* for 1831-32 :

STEAMER AND MASTER.		Tons.	Men.
To Arrochar, summer only, "Dumbarton"			
(M'Leod),	- - -	49	6
To Ayr, Wednesday and Saturday, "Countess of Glasgow" (P. M'Arthur),	- - -	75	8
To Gourrock, Dunoon, and Rothesay, daily, "Arran Castle" (Johnstone),	- - -	81	9
To Gourrock, Dunoon, and Rothesay, daily, "Euing" (Taylor),	- - -	77	7
To Gourrock, Dunoon, and Rothesay, thrice a week, "Dunoon Castle" (Thomson),	- - -	100	9
To Gourrock, Dunoon, and Rothesay, daily, "George Canning" (Hunter),	- - -	81	9
To Gourrock, Dunoon, and Rothesay, daily, "Inveraray Castle" (Barr),	- - -	70	8

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STEAMER AND MASTER.			Tons.	Men.
To Gourock, Dunoon, and Rothesay, thrice a week, "Maid of Islay" (Wallace), - - -	-	-	74	8
To Gourock, Dunoon, and Rothesay, daily, "Superb" (M'Kenzie), - - -	-	-	76	8
To Gourock, Dunoon, and Rothesay, daily, "Rothesay" (M'Kinnon), - - -	-	-	70	8
To Helensburgh and Glasgow, daily, "Caledonia" (James White), - - -	-	-	57	7
To Helensburgh and Glasgow, daily, "Clarence" (John Turner), - - -	-	-	70	8
To Helensburgh and Glasgow, daily, "Greenock" (James Henderson), - - -	-	-	70	8
To Helensburgh and Glasgow, daily, "Helens- burgh" (Alex. M'Leod), - - -	-	-	81	8
To Helensburgh and Glasgow, daily, "Sultan" (Alex. M'Kellar), - - -	-	-	68	8
To Helensburgh and Glasgow, daily, "Waverley" (Robert Douglas), - - -	-	-	55	7
To Kilmun and Greenock, daily, "Gleniffer" (Robertson), - - -	-	-	32	3
To Kilmun and Glasgow, twice daily, "St. Munn" (Hunter), - - -	-	-	63	8
To Largs, Millport, &c., daily, "Albion" (Lapsley),	-	-	64	7
To Largs, Millport, &c., thrice a week, "Countess of Glasgow (J. M'Arthur), - - -	-	-	89	8
To Largs, Millport, &c., thrice a week, "Largs" (J. Niven), - - -	-	-	70	8
To Lochgilphead, thrice a week, "Dunoon Castle" (Thomson), - - -	-	-	100	9
To Lochgilphead, thrice a week, "Euing" (Taylor),	-	-	77	7
To Lochgilphead, occasionally, "Inveraray Castle" (Barr), - - -	-	-	70	8
To Lochgilphead, thrice weekly, "Maid of Islay" No. 1 (Wallace), - - -	-	-	74	8
To Lochgilphead, thrice weekly, "Superb" (M'Kenzie), - - -	-	-	76	8
To Lochgilphead, daily, "St. Catherine" (M'Kellar), - - -	-	-	73	8
On Loch Lomond, daily, "Euphrosyne" (Buchan),	-	-	-	-
To Paisley, daily, "Gleniffer" (Robertson),	-	-	32	7

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STEAMER AND MASTER.	Tons.	Men.
To Rothesay and Inveraray, thrice weekly, "Dunoon Castle" (D. Thomson), - - -	100	8
To Rothesay, daily, "Arran Castle" (Johnston), -	81	9
To Rothesay, thrice weekly, "Euing" (Taylor), -	77	7
" daily, "Inverary Castle" (J. Barr), -	70	8
" thrice weekly, "Maid of Islay" (Wallace), - - -	74	8
To Rothesay, daily, "Rothesay" (M'Kinnon), -	70	8
" " "Superb" (M'Kenzie), -	76	8
To Largs and Millport, daily, "Albion" (J. Niven),	64	7
" " " "Largs" (Jas. Lapsley),	70	8

An important innovation took place in 1831 in the material of the steamers. Up to this the hulls had been built of wood, but iron steamers were now introduced. So early as the year 1787 boats built of iron were in use on the canals in South Staffordshire. The earliest iron steamer was the "Vulcan," built at Faskine, on the Monkland Canal, in 1818, by Thomas Wilson, a master carpenter, and the earliest iron passenger steamer was David Napier's "Aglaia," on Loch Eck. But the pioneer iron steamer for the Clyde traffic was the "Fairy Queen," built by John Neilson, Glasgow, in 1831. She was otherwise remarkable from the fact that she possessed the first oscillating engine in use on the Clyde. She traded between Glasgow and Millport. The cautious mothers and wives of Largs instructed their husbands and families on no account to have anything to do with a vessel "made o' iron—for a' the world like a pot or a pan: it was clean again natur' to think such a thing could be either safe or canny."

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Several other departures in machinery and appliances took place about the same period. The "Ayrshire Lass," built by R. Duncan in 1839, and engined by Wingate, had a geared side lever engine, and a box or square boiler. She sailed on the Ayr Station until sold to the Japanese, and was seen in the inland sea of Japan by a friend of the writer in 1867.

In 1837, the first steam whistle was used, although the credit of introducing it is due to America. It was first fitted on board the "King Philip," running on the Fall River in the United States.

A year later, John Gray of Irvine, one of Robert Napier's apprentices (late senior partner of the Calton Spinning Company of Glasgow, and uncle of the Messrs. Gray, of the Newark Sailcloth Co., of Port-Glasgow), made a working model of a compound surface-condensing engine,

which seems to have been the first engine of the compound type now so common.



DAVID NAPIER

But the man to whom more than anyone else we are indebted for improvements in the early steam-boats was David Napier. This extraordinary man, with his "Marion" on Loch Lomond and his "Aglia" on Loch Eck, was,

as we have already shewn, among the first to exploit the Clyde region as a tourist resort. He



GRAY'S ENGINE

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was one of the first, with his "Aglaia," to adopt iron as the material for shipbuilding on the Clyde, and to his genius we are indebted for other vital improvements. To him is due the credit of producing the surface condenser—not the surface condenser of to-day, but its reverse, and among his other inventions were patent floats, the steeple engine, so long in use on the river, and the haystack boiler.

The writer has been informed that the idea of the steeple engine occurred to Napier about midnight. He was in bed, but he instantly got up, and cleared his dining-room of furniture and carpet, that he might draw his plans in chalk on the floor. He sent a servant post haste for David Tod, and when the latter hastened to the house, thinking his friend was ill, he was met with the remark, "Man, I'm gled tae see ye, Davie! I thocht I wis gaun' tae los' it." A pattern-maker, who was an expert draughtsman, was sent for, and the plans were completed there and then.

The earliest recorded steeple engine was that fitted on board the sea-going steamer "Clyde" in 1832, belonging to G. & J. Burns, but the first fitted on board a river steamer was that of the "St. Mungo" in 1836.

Previous to the year 1838 the engines on board the river steamers were for the most part of the side-lever type, with flue boilers. The first tubular boiler was fitted into the "Luna," built by Jas. & Wm. Napier in 1837. She was a long narrow crank boat, but very

fast, and was driven by a single steeple engine.

The last pair of steeple engines made for a Clyde steamer were supplied to the "Scotia" by William King & Co., Paisley Road, Glasgow,



ENGINE OF 'ST. MUNGO'

for William Buchanan; and the last steeple running on the river was on board the "Vivid," which is now in the scrap heap. The haystack boiler, however, is still with us, and is favoured by some owners on account of its large grate and heating surface and its minimum of weight.

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But to return to the steamers themselves. The "Hero," built by Denny in 1832, and engined by Robert Napier, with dimensions of 98'5" x 15'1", was the first boat owned by Duncan M'Kellar, who continued on the Largs, Millport, and Arran trade until the opening of the Wemyss Bay Railway in 1864.



'LUNA'

The "Tarbert Castle," built by Wood & Mills in 1836, was wrecked on Ardmarnock beach. Her machinery, however, was afterwards fitted on board the "Inveraray Castle," where it did duty until a few years ago.

The last steamers built in this decade were the "Maid of Bute" and the "Isle of Bute" in 1835, for the Glasgow and Rothesay station; the "Luna" in 1837, to run between Greenock

and Kilmun; the "Windsor Castle" in 1838, between Greenock and Inveraray; the "British Queen" also in 1838, and the "Shandon" in 1839, for the run between Greenock and Helensburgh; the "Inveraray Castle" in 1839, between Greenock and Inveraray; and the "Superb," the "Flambeau," and the "Warrior,"



'ISLE OF BUTE'

all in the same year, for the runs between Greenock and Helensburgh, Arran, and Millport and Arran respectively. The last-named steamer was the first two-funnelled boat. She only ran for a short period on the firth, when she was chartered to, and ultimately purchased by, the British Government for survey work on the west coast of Ireland. Her sailing master was Captain Alexander M'Kellar, of the Glasgow and Millport steamers.

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At this period the authorities at the various towns and watering places on the firth shores began to recognise that it was in their interest to provide facilities for the steamer traffic. Hitherto very few of these places possessed a pier or harbour at which the steamers could call, and passengers had to be landed by means of rowing boats; and in addition, it was the prac-



‘ SUPERB

tice to drop passengers into private small boats opposite each of the houses along the Bullwood between Dunoon and Innellan. The story of the various quays and piers which now came into existence possesses an interest of its own.

Several harbours, indeed, existed before this time. Of these, one of the earliest seems to have been the quay of Rothesay, which is said to have existed as early as the eleventh century.¹ Owing, however, chiefly to the require-

¹ This information was obtained from the Rothesay Harbour Office.

ments of the river steamers, the arrangements had become inadequate, and in 1822 an excellent harbour was built, at a cost of £600. Greenock, too, had a harbour built by Sir John Shaw, the superior of the town, between the years 1703 and 1734, at a cost of £5600, and Cartsdyke, then a separate place, possessed a



ROTHESAY

quay as early as 1697, when part of the Darien Expedition was fitted out there. But we have already seen how, in 1829, the masters of the Clyde steamers had found it necessary to demand better accommodation from the harbour trustees. We have seen also that the pier at Kilmun owed its erection in 1828 to the enterprise of David Napier. Millport pier was erected by subscription in 1833, the principal promoter being the Marquis of Bute.

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Largs quay followed in 1834, at a cost of £4275.

Largs was the scene of one of the most painful incidents of its kind which have occurred in the annals of Clyde river steamer sailing. On a Monday morning shortly before the harbour was opened for traffic, the ferry boat was taking off a cargo of passengers to the "Hero" when she was swamped by the "back wash" from the west wall of the harbour, and seven or eight persons were drowned. The memory of the tragedy haunts the shores of Largs to this day, and it was years before its first poignancy passed away from the secluded and self-centred little town.

A wooden jetty, 130 yards long, was built at Dunoon in 1835 by a private joint-stock company. At this date the permanent population of the Dunoon and Kilmun districts was 1300.

After this there seems to have been a pause, but other quays and piers followed at a later date. Strone pier was built in 1847, Blairmore in 1848, Kilcreggan in 1850, Innellan in 1851, Cove in 1852, and Hunter's Quay and Ardnadam in 1858. The longest to remain without a suitable landing-place was the charming island of Arran, its proprietor, the Duke of Hamilton, displaying a prejudice against anything tending to alter the natural appearance of the island. For this reason the pier at Brodick, the earliest, was only erected on the island in 1872, and the latest, that at Whiting Bay, was only completed in 1901.

In several cases the rise of a watering-place was the direct result of the building of a pier. Thus, when John M'Iloy built his pier at Cove in 1852 there was not even a village at the spot. At his own expense he built a small pier with timber from the neighbourhood, and for years kept a man on it to take the steamers' ropes. Ultimately, however, his enterprise was rewarded. Houses sprang up, the pier became a valuable property, and it was only recently that the Duke of Argyle, exercising a right reserved to him in the original agreement with M'Iloy, took over the pier at its original cost of £600.

The steamboats revolutionised the methods of travel not only on the river and firth, but on their shores. The coaches were all run off the roads, and prophets were busy alleging that soon there would be no use for horses, and that even roads would be abolished. The latter foreboding is portrayed in a song which was familiar to the natives of Cowal at this period. It was probably composed in that district. The burden of "The Totums," as the song is called, is that the steamers are against the prosperity of the stone-breaker, but there are compensations.

THE TOTUMS.

"Contented wi' Maggie, how blythe ha'e I been !
 This seventeen towmonds we've met aye at e'en ;
 Though whiles we fa' oot, yet we quickly agree,
 A kiss turns the diff'rence 'tween Maggie an' me,
 Though steamboats are 'gainst us we maunna complain,
 For oor wee bits o' totums are toddlin' their lane,
 Toddlin' but and toddlin' ben,
 Oor wee bit's o' totums can toddle their lane.

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“Nae bills I’ve to pay, nor wi’ racking fyke,
But to cairney up stanes at the side o’ the dyke ;
I’m pleased to see them break, and the vivid sparks fly,
But gloom at the steamboats as they’re passin’ by,
But though they’re against me I maunna complain,
For my twa bits o’ totums are toddlin’ their lane,
Toddlin’ but and toddlin’ ben,
Oor wee bits o’ totums can toddle their lane.

“So I’ll sing, Captain Glen, wi’ a heart fu’ o’ glee,
And be joined by the mavis that sings on yon tree ;
It warbles sae sweet mak’s my hammer stand still ;
A’ join in the tunes, e’en the wee wimplin’ rill.
Steamboats may afflict us, but I’ll ne’er complain,
For my twa bits o’ totums are toddlin’ their lane,
Toddlin’ but and toddlin’ ben,
Oor wee bits o’ totums can toddle their lane.”

So sang honest John as he splintered a stane,
Till twa bairns wi’ his breakfast cam’ toddlin’ their lane,
They cam’ toddlin’ their lane, arms roon’ ither sae fain,
And the twa bits o’ totums cam’ toddlin’ their lane—
They cam’ toddlin’ their lane, arms roon’ ither sae fain,
And the twa bits o’ totums cam’ toddlin’ their lane,
Toddlin’ but and toddlin’ ben,
Oor wee bits o’ totums can toddle their lane.

“Hey, daddy dear, here’s your parritch quite hot :
Ma struck Jock wi’ the spurtle for scartin’ the pot.”
“Whist, bairns !” says he, and his bonnet he raised,
Looked up at the sky while his Maker he praised ;
Leaves a sowp to the dog, hands the cog back again,
And the twa bits o’ totums gaed toddlin’ hame,
Toddlin’ but and toddlin’ ben,
Oor wee bits o’ totums can toddle their lane.

“The sun it looks blythe owre Corlorach sae hie,
I’ll meet my ain wife wi’ the smile in her e’e ;
She’ll hae Jean at her fit and Tam in her lap,
And she’ll toddle to meet us when I’m at the slap ;
Collie’s bark welcomes me to a clean heartstane,
Where my twa bits o’ totums gang toddlin’ their lane,
Toddlin’ but and toddlin’ ben,
Oor wee bits o’ totums can toddle their lane.”

CHAPTER V

RAILWAY AND STEAMER

THE steamboat trade on the river was now at its busiest and most prosperous period. The coaches which had plied formerly between Glasgow and Greenock and Glasgow and Inveraray were no longer on the road, and the Glasgow and Greenock Railway was not yet opened. As a result, the number of steamers which plied from the Broomielaw was astonishing. In the evidence taken before a Committee of the House of Lords on the Clyde Navigation Bill of 1840, it was stated that the steamers were so numerous in the summer months that in getting passengers and goods on board they only touched the quay at one point and lay at an angle in the river. No fewer than sixty-nine collisions, more or less serious, had occurred within the harbour during the years 1838 and 1839. The reason adduced for these was the narrowness of the river, but of course the correlative reason was the great crowd of steamers.

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A new and important factor, however, now entered upon the scene. The Glasgow and Greenock Railway was opened in 1841. At the opening the Railway Company purchased the steamers "Isle of Bute," and "Maid of Bute," and built in '44/45 the "Pilot," the "Pioneer," and the "Petrel," and a competition for the coast traffic, more formidable than anything experienced by the river steamers among themselves was introduced.

The steamboat companies opposing the railway were the Castle Company, the Helensburgh and Gareloch Company, and the Largs, Millport and Arran Company, better known as "M'Kellar's boats." These owners met the new competition by inaugurating direct sailings between Glasgow and Gourock, and their efforts were attended with conspicuous success, especially when the tide was favourable.

It was at this period that the public entered into what may be termed the Clyde Steamboat Racing Ring. The races between the competing steamers assumed the importance which the Derby holds in the horse-racing world, with this difference, that it was not merely a one day's contest. All day and every day the rivalry went on, and keen interest and hot disputes arose over the merits of the favourite boats.

The spirit of rivalry was, of course, keenest among the captains and crews themselves. It cannot be said to be dead yet, and though,

when a race was over, the skippers and crews have usually been able to discuss the merits of the competing boats in cool blood, and with good humour "over a dram," while they were "at it" their motto was a marine version of "Death or Glory, boys"! Unfortunately, however, the rivalry from time to time occasioned personal and regrettable incidents, which could not be dignified with the name either of business or sport, but must be attributed to unmistakable bad temper. Human nature has its failings on Clyde steamers as elsewhere.

There is little room for doubt that some of the deplorable accidents which occurred about this time were attributable to this fierce rivalry.

Among these were the explosion of the boiler of the "Telegraph" at Helensburgh in 1842; the wreck of the "Countess of Eglington" at Millport in 1846, and the explosion on board the "Plover" at the Broomielaw in 1848.

After a time, the Railway Company modified the competition by making terms with the steamboat owners to run their vessels in connection with the trains, and from that time the present system of rail and boat to and from the coast was firmly established. This, with the hurrying and "sprinting" which has always accompanied it, was made the subject of a song in 1843 by the well-known Glasgow poet, Andrew Park. The piece has some

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descriptive merits, and may not be out of place here.

THE GREENOCK RAILWAY.

'Twas on a Monday morning soon,
As I lay snoring at Dunoon,
Dreaming of wonders in the moon,
I nearly lost the Railway.
So up I got, put on my clothes,
And felt, as you may well suppose,
Of sleep I scarce had half a dose,
Which made my yawns as round as O's.
No matter, on went hat and coat,
A cup of coffee boiling hot,
I poured like lava down my throat,
In haste to catch the Railway.
Racing, chasing to the shore,
Those who fled from every door,
There never was such haste before—
To catch the Greenock Railway.

The steam was up, the wind was high,
A dark cloud scoured across the sky,
The quarter-deck was scarcely dry
Of the boat that meets the Railway.
Yet thick as sheep in market pen
Stood all the Sunday watering-men—
Like growling lions in a den,
With faces inches five and ten.
Some were hurrying to and fro,
Others were sick and crying, "Oh!
Who's wooden peg's that on my toe?"
In the boat that meets the Railway.
Rushing, crushing, up and down,
Tipping the cash to Captain B——n;
Oh what a hurry to get to town,
Upon the morning Railway.

When arrived at Greenock quay,
What confusion! Only see

Each selfish wight as quickly flee
In hopes to catch the Railway !
High and low, and thick and thin,
Trying who the race will win—
Creaking boots and hobnailed shoon—
All determined to get in !
People laughing at the shore :
Merchants smiling at each door ;
'Those running who ne'er ran before,
And all to catch the Railway !
Fleet through Greenock's narrow lanes,
Over mud and dubs and stanes,
Careless o' their boots and banes—
And all to catch the Railway.

See the rear-guard far behind,
Out of temper, out of wind,
Out of patience, out of mind,
For fear they lose the Railway.
Last comes old Fatsides with his wife,
Waging a real hot-mutton strife,
"Such scenes in Scotland sure are rife !
It's very hot, upon my life !"
"Alack ! there'll be no room for us—
Let's get into the homnibus !"
"Oh pray, my dear, don't make a fuss
If we should lose the Railway !"
Blowing, glowing all the way,
Crying upon the train to stay :
"We'll never get to town to-day
Upon the morning Railway !"

Now the crowded station gained,
Rain-bedrenched and mud-bestained,
Melting-browed and asthma-pained,
Hurrying to the Railway.
A boat has just arrived before,
Which later left a nearer shore,
And fills a full-sized train and more,
Which is a most confounded bore ;
But coach to coach are quickly joined,
Which surely is surpassing kind ;

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And off we ply as fleet as wind,
Upon the Greenock Railway.
Thus the sports of railway speed,
Nought on earth can now exceed,
Except my song, which all must read,
About the Greenock Railway.

The moral of my song I add,
To make you married ladies glad,
Who lately were a little sad—
Before the Greenock Railway.
So now dispel each mopish frown,
And don your most attractive gown :
Your loving husbands can get down
In one short, fleeting hour from town,
While vessels waiting at the quay
Conduct them swiftly home to tea,
Or to a drop of barley bree—
So certain is the Railway.
Then let us steal a march on Time,
And echo forth this ranting rhyme,
Which street Rubinis think sublime,
About the Greenock Railway.

The following information relating to the new railway may also be of interest :—

Glasgow, Paisley, and Greenock Railway.

DIRECTORS—Robert Dow Ker, Chairman ; Archibald Falconer, Deputy-Chairman ; Roger Aytoun ; William Frederick Burnley ; William Dixon ; William M'Fie ; Alexander M'Callum ; John Poynter ; Christopher Saltmarshe ; Patrick Maxwell Stewart ; James Tasker ; Alexander Thomson.

Consulting Engineer—Joseph Lockie ; Acting Engineer—John Edward Errington ; Secretary—Mark Huish ; Law Agents—Gabriel Hamilton Lang, and James Turner.

Agent at Glasgow Station—Andrew Thomson.

„	„	Paisley	„	George Penfold.
„	„	Port-Glasgow Station—	Wm. Auld.	
„	„	Greenock	„	Alexr. Paul.

The trains ran at the following hours during summer :—

From Glasgow at 8, 9, and 10 A.M.; 12 noon, 2, 3, 4, 5, 6, and 8 P.M.

From Greenock at 8.30, 9, 10.30, 12.30, 1.30, 3.30, 4.30, 6.30, 7.30, and 8.30.

There were no trains run on Sundays.

During the forties no fewer than forty-two steamers were built for the Clyde passenger traffic. Most of them contained improvements upon their predecessors both in design and in the general arrangement of the hulls and machinery. The first of these steamers to be launched was the "Telegraph" in 1841. She was built by Hedderwick & Ransomes, and was employed in the Glasgow and Helensburgh trade under the charge of Captain Ewan. In 1842, however, as already mentioned, her boiler exploded alongside Helensburgh Pier. The accident resulted in the death of twenty-five persons, and it sealed the fate of high-pressure boilers or non-condensing engine, on passenger steamers.

Among other steamers turned out at this period were the "Lady Brisbane" and "Lady Kelburne," both by Mr. Young, father of the late Captain Robert Young, better known as "Captain Kid." These steamers were built to oppose M'Kellar's boats, but the rivalry was of short duration, and resulted in amalgamation. The former steamer was afterwards re-named the "Balmoral," and during the eighties was put to a very severe test by the late Thomas



'LADY BRISBANE'



'LADY KELBURNE'

Gray, principal officer of the Board of Trade, who wished to condemn her. The test was the removal of the keel blocks, when on Kelvinhaugh Slip, from under her engine and boiler space. She survived this severe treatment, however, and consequently was respited, and she sailed in the Greenock and



‘EMPEROR’

Helensburgh trade for several years afterwards. She is now a coal hulk at Newry.

In the year 1843 Tod & M'Gregor built the "Emperor" for Henderson & M'Kellar's Glasgow and Helensburgh trade. This was the first steamer to take up Sunday sailing on the Clyde: this she did in June, 1853.¹ She

¹ It will be seen from the advertisement which appears on page 54 that in May, 1829, one of the packets sailed from Rothesay to Greenock every Sunday morning with mails: this was the first instance of Sunday sailing, but it was not openly for passengers.

was afterwards re-named the "Aquila," and left the river. The "Invincible," turned out by the same builders in the following year for M'Kellar's Millport trade, was sold to foreign owners.

At this period was built the earliest of what may be termed the "freak" steamers which from time to time have appeared on the Clyde.

The "Queen of Beauty," built by Thomas Wingate in 1844, and engined by Robert Napier, was the idea and property of John Kibble, the original owner of the Conservatory known as the Kibble Palace, in Glasgow Botanic Gardens. The boat was fitted with two paddle-shafts on each side, one forward and one aft, between two and three feet above the water line. On each shaft a drum was fixed, and a belt with floats fastened to it extended from one drum to the other. This was intended as an improvement on the ordinary paddle-wheel, but it did not prove a success. She was afterwards fitted with the less ambitious paddles; the "Leven's" engine was fitted into her, and she was re-named the "Merlin."

The next steamer worthy of mention was the "Cardiff Castle," built by Caird & Co., Greenock, in 1844. She was fitted with the first double diagonal engine, and besides running in the Rothesay trade, she inaugurated the Royal Route to Ardrishaig and the West Highlands. The builder's certificate for this

steamer is the earliest record of the kind that I have seen. It runs as follows :—

“These certify that we, Caird & Co., Engineers and Founders in Greenock, County of Renfrew, built in our building yard here, in the year one thousand eight hundred and forty-four, and launched from thence on the third day of June of the same year, the steamer ‘Cardiff Castle,’ John Campbell, master, being a square-sterned, clinker-built iron vessel, constructed to be propelled by steam, rigged, two-masted schooner, with one deck, a scroll head and quarter pieces, and that her length, from the inner part of the main stem to the fore part of the stern post aloft, is one hundred and seventy feet three-tenths. Her breadth amidships on deck is nineteen feet ; depth of hold amidships, nine feet three-tenths ; and admeasures after deducting the engine-room. And that William Campbell, Esquire of Tilliechewan ; John Watson, Esquire, Merchant, Glasgow ; James Hunter, Esquire of Hafton ; Alexander Struthers Findlay, Esquire, Merchant in Glasgow, and other partners of the Castle Steam Packet Company, are the first purchasers and sole owners, and that the said vessel was never registered before.

“Given under our hands at Greenock this eighteenth day of September, one thousand eight hundred and forty-four.

“CAIRD & Co.”

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The "Craignish Castle" is mentioned in another part of the same document as having



'CRAIGNISH CASTLE'

been launched on 26th June, 1844, Neil M'Gill being her master. He was succeeded by John Reid, senior.



JOHN REID

In the same year the "Countess of Eglinton" was built by Barr & M'Nab for William Young, and was employed in the Glasgow and Millport trade until 1846, when she was wrecked at Millport. Her engines were salvaged, and fitted on board the "Monarch" by Henderson of Renfrew.

This vessel was sold in 1854 to go to Tasmania. There has been a good deal of controversy regarding her fate, but the following may be taken as authentic, being an extract from the log of the vessel :

"Wednesday, 22nd February, 1854.—The pilot came on board, and the tug "William



'MONARCH'

Wallace" towed her to an anchorage in Gareloch to adjust her compasses. Left Rothesay Bay for Hobart Town, Tasmania, schooner rig, on the 4th March, 1854, under the command of T. M'Kinnon. Arrived at Hobart Town, 12th July, 1854."

This extract was furnished by the Harbour Master at Hobart, who also informed me that the machinery was removed in 1899, and was

running a saw-mill at the Huon River, Tasmania. These particular engines, therefore, had a somewhat varied and eventful career.

The "Edinburgh Castle," built by Smith & Rodger in 1844, sailed originally between Glasgow and Kilmun. She is now named the "Glengarry," and plies to the present day on the Caledonian Canal.



'MARS'

The "Caledonia" was also built by Smith & Rodger in 1844. She was of similar design to the "Koh-i-noor," and ran on the Kilmun route. Her master was Dugald Thompson, a well-known figure on the Clyde in his day.

The "Mars," built in 1845 by Wingate for the M'Kellars' Largs and Millport trade, had the engines of the "Victor" fitted into her, and sailed on the Clyde till 9th April, 1855, when

she went ashore at the Gogo Burn, Largs, and became a wreck. Her passengers were landed by means of a cart, which was able to come alongside, and on the following day she broke up, and the boiler rolled out of her.

The "Windsor Castle," built by Tod & M'Gregor in 1845 for the Rothesay trade, was re-named successively the "Mary Jane" and the "Glencoe," and under the latter name still sails between West Loch Tarbert and Islay.

In 1845, Denny Brothers built their first iron steamer, the "Loch Lomond." She was engined by Smith & Rodger, and among other improvements on board was the fore-runner of the engine telegraph of to-day. The captain conveyed his orders to the engineer by means of a rack-pin, a knocking contrivance on the engine-hatch, which was followed by the well-known knocker, now in its turn obsolete.

The idea of the experimental tank as a means of testing models was not unknown even at this early period, the first test having been made by David Napier in Camlachie Burn. The method employed, though somewhat crude, was at least ingenious. For the purpose Thomas Seath, the shipbuilder (who died at Langbank in 1902), used the surface of the Johnstone Canal. His plan was to attach a model to each end of a jack-stick, fastened in its centre to the line of a fishing-rod. By this means he discovered which model gave the least resistance. It was certainly a good and original idea.

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In 1847 the well-known Loch Goil steamer, "Breadalbane," was built by Smith & Rodger (now the London and Glasgow Engineering and Shipbuilding Company). She continued regularly in the Loch Goil trade in charge of Captain Graham for ten years. Then she sailed for Sydney, N.S.W.



'BREADALBANE'

It was in August, 1847, that the Royal Squadron arrived off Greenock. Queen Victoria was on board the royal yacht "Victoria and Albert," and she was escorted to the Tail of the Bank by the river and other steamers "Hercules," "Chieftain," "Fire Queen," "Conqueror," "Admiral," "Garland," "Mars," "Scourge," "Undine," "Fairy," "Thetis," "Sovereign," "Premier," and "Craignish Castle." It was a memorable event in the

history of the Clyde, upon whose waters probably no British sovereign had floated since Queen Mary sailed from Dumbarton Castle for France in July, 1548, nearly three centuries before, and the array of steam vessels which met and escorted Her Majesty not only testified to the loyalty of her subjects on the Clyde,



THE QUEEN'S VISIT

but illustrated the triumph of the new power moving on the face of the waters.

As we have now reached the middle of the century, thirty-eight years after the first steamer sailed on the Clyde, it may be interesting to note a few facts shewing the progress made in the construction of machinery, etc. Previous to the year 1850, 168 steamers had been built for the Clyde passenger traffic. The types of machinery in use had been : 1st, the side-lever engine ; 2nd, the steeple engine with one piston

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rod; 3rd, the oscillator. The boilers were: 1st, waggon, fired underneath; 2nd, the flue boiler; 3rd, the haystack; 4th, the horizontal tubular. The steam pressure had risen from 5 lbs. per square inch in 1812 to 25 lbs. in 1849.

In the matter of accidents, three boilers had exploded, and one hundred and eight people had been killed or drowned through the carelessness or stupidity of those in charge of the deck or engine room.

CHAPTER VI

THE LIVELY FIFTIES

THE modern type of passenger steamer on the Clyde may be said to date from the year 1850. The period then begun was one of great improvement and development in the design and construction of the hull and machinery. The competition was keen, the traffic had increased, and the shores of the estuary had become popular and fashionable summer resorts. It was at this period that feuing on an extensive scale began in some of the now popular resorts on the Firth of Clyde—such as Kilcreggan, Cove, Blairmore, Dunoon, and Rothesay.

During the decade from 1850 to 1859, forty-two steamers were built for the coast service. Of these, twenty-one were fitted with haystack boilers, and five with tubular, while one had a horizontal boiler, one a flue, and one a water-tube boiler. Of the engines, twenty were of the steeple, seven of the oscillator, three of the diagonal, one of the diagonal oscillating, one of the trunk, and one of the

rotary type. These were all fitted, so far as I can find, with jet condensers, except the "Rotary," described later, and the boiler pressure averaged 30 lbs. per square inch. The engineers were, as a rule, men trained in the boats as firemen, the more intelligent being promoted to the position of engineer. Many of them were well qualified for the position, and gave their owners satisfaction. It must be said, however, that the boilers got very different treatment in those days from the treatment they get now, and in consequence the "life" of a boiler was shorter by 30 to 40 per cent. than it is at the present day. It must, however, be admitted that the care exercised at the present day in the construction of the boilers was not thought of at that time.

Previous to 1850, the river craft were owned principally by companies and merchants. These owners, however, ultimately transferred the steamers to the men actually working or managing the boats. Shipbuilders frequently built vessels as a hobby, but, after trying the respective merits of the boats, they usually disposed of them, and as a general rule individual ownership prevailed.

The first vessel of the decade was the "Queen," by Denny. In the same year, 1850, one of the few unfortunate steamers of the Clyde was launched. This was the "Eclipse." She was built by Wingate, and was employed for four years on the Kilmun and Dunoon trade. One lovely summer morn-

ing, however, as she left Dunoon, the Gantocks came in the way of the genius at the wheel, and there she remained. Her machinery was salvaged and fitted into a new hull built by Thomas Seath. The new boat was named the "Nelson," and after sailing on the river for many years she went to West



'ECLIPSE'

Africa, and ultimately left her bones in the Bight of Benin.

In 1851 the "Victoria" was built by Robert Napier, and was fitted with the first oscillating engine made by him. 1852 saw the building of the "Glasgow Citizen" by John Barr at Glasgow. After being employed in the Rothesay trade for a few years, she was sold to Australian owners. She was taken out

under sail by Captain John M'Lean, of Kirkmaiden. This mariner was better known in his time by the picturesque appellation of "Hell-fire-Jack." He did the voyage to Melbourne in fourteen days less time than one of the Glasgow clippers which sailed along with him. The captain of the sailing ship, it is said, had kindly promised to report the departure of the "Glasgow Citizen" from the Clyde when he should arrive at Melbourne. He was evidently unacquainted with the "go" of "Hell-fire-Jack." As a matter of fact, when the clipper arrived M'Lean was already running on the station between Melbourne and Geelong. He did well out there for his owners, and had a varied and eventful career. His next visit to the Clyde was the result of a trip which the writer made through the Australian colonies in 1886. On his return from Australia M'Lean took out the passenger steamer "Ozone," which revolutionised the passenger trade in Hobson's Bay.

Besides the "Glasgow Citizen" seven other notable steamers left the stocks in 1852. They were the "Venus," "Reindeer," "Rotary," "Mountaineer," "Eagle," "Osprey," and "Gourock."

The "Venus," built by J. & G. Thomson, late of Clydebank, for the MacKellars, was a very tender craft. She was employed on the Largs and Millport route for many years, and ran ultimately between Wemyss Bay and Millport as one of the Gillies & Campbell fleet, in

company with the "Largs" and "Argyle." She ended her career in the scrap heap.

The "Rotary" was built by Henderson, of Renfrew, and engined by Wingate to the order of David Napier, and it embodied a number of the ideas of that remarkable man, which proved him to be far in advance of his



'VENUS'

time. She was furnished with a surface-condenser in the form of a tank placed under the machinery. This tank was filled with tubes, to which sea-water was admitted and discharged through apertures in the shell plating. The boiler was of the "water-tube" type. It had double rows of tubes placed diagonally, and wrought, under the forced draught principle, at the pressure, remarkable in those days, of 120 lbs. per square inch. The furnace bars

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were also circulating tubes, and each was fitted with a cock to draw off any deposit. These water-tube fire bars, together with the forced draught, were patented by Napier in 1851. The rotary engine, from which the boat took its name, proved hardly so great a success. It appears to have consisted of one long cylin-



WRECK OF 'MOUNTAINEER

der in two compartments, "through which the paddle shaft passed." After a short time this engine was replaced by a pair of diagonal oscillating engines, made by Henderson of Renfrew. This firm retained the boat, renaming her the "Gareloch," and ran her on the Garelochhead route for several years, until she was sold to German owners.

The "Mountaineer" was a very smart, flush-deck little steamer. She was built by J. & G.

Thomson to the order of David Hutchison & Co., for the Glasgow and Ardrishaig service. Under Captain John M'Callum she sailed successfully for many years, and proved a popular steamer, well suited in those days for the service in which she was employed. Placed ultimately on the Oban station, in charge of



‘EAGLE

Captain D. M'Callum, she was at last wrecked in the Sound of Mull in September, 1889, through her machinery becoming disabled.

The “Eagle,” built by Messrs. Denny, and engined by M'Nab & Clark, Greenock, was owned for a time by the builders. She was afterwards acquired by Williamson & Buchanan, who employed her successively on the Rothesay

and Arran and the Kyles of Bute stations, and ultimately sold her in 1862 to run the American blockade. As a blockade runner she had a most eventful and successful career, but was at last sunk by the Federals.

The "Osprey" was built by Barclay, Curle, & Co., and engined by the Messrs. Inglis.



'LOCH GOIL'

Under Captain Neil M^cGill, who was part owner, she was employed in the Rothesay trade until sold to go to the River Plate. On the voyage out, after leaving Bermuda, she was lost with all hands.

In 1853 the "Wellington," "Baron," "Chancellor," "Vesta," and "Loch Gail" were added to the list.

The "Wellington," built by Barr for Hender-

son & M'Kellar, sailed in the Glasgow, Kilmun, and Dunoon trade for seven years. As she was a very slender craft, however, she was then broken up. Her machinery was fitted into the "Sultan" in 1861. This vessel was ultimately re-named the "Garelochty," and is now running as one of the MacBrayne fleet on the Caledonian Canal.

The "Baron" was built by Henderson of Renfrew, and engined with oscillators by Hobey. She had square boilers. These, however, proved a failure, and were replaced with a steeple engine and haystack boiler by Blackwood & Gordon, Port-Glasgow. After sailing for a few months on the Rothesay station in charge of Captain James M'Kinlay (ultimately of the North British Company's steamers), she was sold to Russian owners. Misfortune, however, seemed to follow her. On her arrival at the Russian port of delivery, no cash was forthcoming. She accordingly returned to the Clyde, where she was re-christened the "Diamond." Finally she went to Copenhagen.

The "Chancellor" was built by the Messrs. Denny for the Loch Long and Loch Lomond Steamboat Company, and sailed on the Arrochar and Glasgow route under Captain John Wilson (the inventor of the knocker) till sold to run the American blockade.



JOHN WILSON

The "Vesta," built by Seath for Duncan M'Kellar, formed one of the latter's Largs and Millport fleet for many years. She was afterwards engaged in the Kilmun trade, and was burnt at Ardnadam in 1888.

The "Loch Goil" was built and engined by J. Barr for the Loch Goil Co., and sailed on the Glasgow and Loch Goil route. She had a steeple engine and haystack boiler.

The other vessels of the fleet built during this decade must still be fresh in the memories of frequenters of the Firth who themselves were "registered" during the fifties. Two of them are still doing duty under Mr. MacBrayne's flag, namely, the "Loch Goil" and the "Hero." The former is now sailing as the "Loch Ness" on the Caledonian Canal, and the latter, dating from 1858, is now the "Mountaineer," which sails out of Oban during summer.

The following year, 1854, may be considered the beginning of the lively period. Caird's first "Rothesay Castle," and Henderson, Colborne, & Co.'s first "Ruby," were placed in their natural element in that year. Both steamers were in the Rothesay trade. The former, commanded by Captain Neil M'Gill, was a beautiful little boat. She was famous for speed, and in respect of symmetry and finish seemed more a shipbuilder's model than a craft for commercial purposes. I am satisfied that more gold decorated her paddle-boxes, etc., than lined the pockets of her owner from that venture. The "Ruby" was not such a grey-

hound, but her commander, Captain Richard Price, improved upon that defect. At the same time, unfortunately, he increased his reputation for clever manœuvring and racing to such an extent that he was obliged to retire from the field in July, 1861.

The only other steamers built in 1854 were the "Gem," "Express," and "Vulcan."



'ROTHESAY CASTLE'

The "Gem," built by Henderson for Henderson & M'Kellar's fleet of Helensburgh steamers, and commanded by Captain M'Aulay, ended her career, like many others, as a blockade runner.

The "Express" was built by Barr for the Kilmun trade. After ten years' service she went into the scrap heap, while her machinery was fitted into "Vesper" No. 2. She was sold for blockade running, and was lost off Lambay Island.

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The "Vulcan," built by Robert Napier, had fitted into her a beautiful little pair of oscillating engines, and a boiler of the square shape which was then being tried. The latter was replaced with a flue boiler, and the little steamer did yeoman service between Glasgow and Rothesay, summer and winter, for many



'VULCAN'

years. Latterly she did duty between Glasgow and Clydebank as a conveyance for the workmen of J. & G. Thomson until the railway was opened, when she was relegated to the scrap heap.

Many will doubtless remember amusing incidents and anecdotes connected with this steamer, and with the brothers Alexander and Thomas (Homish) M'Lean so long associated with her. During their period on the river

these two splendid men did more than the average share of practical benevolence. Notwithstanding their somewhat gruff manner, they let many a poor soul travel free, in many cases with food thrown in, and in some cases, I am sure, with a little "Samuel Dow" to help it over. They were generous to a degree, and were often taken advantage of. In those days the dinner in the "fore cabin" was not the individual table arrangement of the present day. It had more of the family party character, and "hail fellow well met" was the rule. There was always a chairman, who said grace and did the carving, throwing in a good story or two to help digestion. One occasion I remember, the sea was by no means "like a lake," and the cook coming down the circular stair with "the joint," made his entrance head foremost. Consternation seized Homish, but only for a moment. He was equal to the emergency, and in a voice loud enough to be heard by all the company, ordered the cook to bring down "the other roast." This, when it appeared, was, of course, simply the unfortunate one, wiped up and basted afresh. Toddy usually wound up the repast. In fact, it usually wound up every banquet on board, tea generally concluding with "a cinder" in the last cup. This latter custom recalls an incident of which I was a witness. The cook on this occasion had by mistake (a real treat for some) put a jug of whisky instead of water into the tea kettle. The effect was very peculiar and very amusing, and I need

scarcely say there was no need for "a cinder" in the last cup that night.

When business was good "down below" in the steward's bar, Homish had the reputation of quietly giving the engineer a hint not to hurry, punctuality being a matter of less account in those days. Of the many stories told about him was one of his going to his tailor for a new pair of trousers. He explained his object, it is said, by declaring that he wanted "a strong, warm pair o' breeks *to fit a steamboat*." He is also credited with the indignant retort to a passenger who complained about the condition of the towel he had to use: "A hunner have used it afore you, and you're the first to complain." Lavatory arrangements, it is needless to say, were then only in their infancy.

The year 1855 saw five steamers put into the water—"Superb," "Iona" No. 1, "Sir Colin Campbell," "Alma," and "Nelson." Of these the "Superb" was built by Denny for the Helensburgh and Gareloch route. The "Sir Colin Campbell" only sailed for the short period of two summers in the Kyles of Bute and Loch Fyne trade, till she was disposed of to Hull owners. She ran on the Clyde under command of Captain Alexander M'Lean (better known by his connection with the "Vulcan"), and she was popularly known as "the two-bowed steamer," from the fact that she had a rudder at each end. This peculiar feature was not repeated on any other steamer, except the

"Kingston," which may be taken as conclusive proof that it was not a success.

The "Alma," built to the order of Duncan Stewart, ran, first on the Helensburgh and afterwards on the Rothesay route, and was not a bright specimen. She struggled along, however, for ten years. Then a new hull was built for her machinery. This, named the



'SUPERB'

"Argyle," was afterwards one of the Wemyss Bay fleet, and at the present day is doing duty at Dundee.

Of the quintet by far the most famous was the "Iona." This steamer, the first of a famous fleet, was built by J. & G. Thomson, to the order of David Hutchison & Co., for their Glasgow and Ardrishaig service. She was a repetition, enlarged and improved, of the "Mountaineer" already referred to, which had

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run so successfully with the mail and tourist traffic on the first stage of the Royal route to the West Highlands. The successive "Ionas" were the only excursion steamers of first-class description on the Clyde for a period of twenty-two years, and this fact so firmly established



'IONA' NO. 1

their reputation that they are still spoken of all over the world as the premier passenger steamers. The honour was well deserved, for the appointments of the whole series were, in every respect, superior to those of other boats.

"Iona" No. 1 made her first run in June, 1855, and continued on the station till the autumn of 1862, when she was sold for

blockade running. She did not, however, get beyond Fort Matilda. There has been a good deal of controversy as to the fate of this favourite steamer, but the following authentic account of the incident should finally dispose of any doubt on the subject. It has been furnished to me by an eye-witness, Mr. Peter Ferguson, late of the firm of Fleming & Ferguson, Paisley, to whom I have been indebted for other valuable information. The "Iona," Mr. Ferguson says, had her compasses adjusted in the Gareloch immediately previous to her departure for America in October. This being done, she was crossing to Gourrock Bay for the night without lights, when, off Fort Matilda, she was run down by the new screw steamer "Chanticleer," which was returning to Glasgow from her trial trip. Mr. Ferguson was the engineer in charge of the new steamer. He witnessed the final plunge of the "Iona," and he says she still lies at the bottom of the frith off Fort Matilda, where she sank.

The only two steamers recorded in 1856 are the "Jupiter" and "Mail." The former was built by Tod & M'Gregor, to the order of Duncan MacKellar, for the Largs, Millport, and Arran service, and was in every respect a notable addition to the MacKellar fleet. Her career on the Clyde, however, was short. She was sold for blockade running, an occupation in which she proved very successful.

In 1857 three rather famous steamers were built—the "Alliance," the "Spunkie," and the

"Kelpie." All three were the production of Tod & M'Gregor. The first-named plied on the Loch Goil and Arrochar route, and was of a most peculiar design. She had a double hull, with a trunk engine and a central paddle-wheel. She was also the first steamer to have saloons built on the main deck, and was, consequently, the original "saloon steamer." Her designer was young George Mills.

The late Dr. Hedderwick, in his *Backward Glances*, refers to Mills and his father. The latter was at one time Lord Provost of Glasgow. The son's career, according to Dr. Hedderwick, was from first to last as interesting as it was varied. He was, in turn, a steamboat agent, a shipbuilder, a newspaper proprietor, and a chemist. The shipbuilding firm in which he had a share was probably that of Hedderwick & Mills, at Bowling. Like so many other steamers of that time, the "Alliance" was sold to Liverpool, and ultimately became a blockade runner. She appears to have got across the Atlantic safely enough, but I have no record of her performance in American waters.

The building of the "Spunkie" and "Kelpie" created an undoubted sensation on the river. Until they also were sold for the more exciting work of running the blockade, they certainly infused vitality into the traffic on the Firth. Employed chiefly in the Largs and Millport trade, they were among the last of the well-finished type of flush-deck steamers, with steeple engines and haystack boilers, which

were run on the motto of the shipbuilders of that period—"speed regardless of expense."

In 1858, the only steamers launched were the "Hero" and "Dumbarton." The former, built by Wingate, was the first steamer with a flat floor. This enabled her to carry a full cargo without listing to the rail. Her boiler was the first of the haystack type to be built of steel, and her steeple engine was one of the most successful of its kind. As has been already stated, she was afterwards re-named the "Mountaineer," and was running out of Oban last summer (1903).

The "Pearl," "Loch Long," and "Windsor Castle" were the only steamers launched in 1859. The "Pearl," by Henderson, Colborne & Co., Renfrew, was not considered a success. She was of the usual flush-deck type, but her machinery was of a most unusual design—four diagonal cylinders oscillating with one crank. After being employed on the Rothesay station for a few years, she was sold as a blockade runner.

The "Loch Long," built and engined by Denny for the Loch Goil Company, was a smart flush-deck little steamer, and was commanded by William M'Intyre. A few years later she was disposed of to Copenhagen owners.



CAPTAIN WM. M'INTYRE

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The last of the fifties, the "Windsor Castle," by Caird & Co., was built of mild steel, with double diagonal engines and one haystack boiler in front of the paddle-boxes. Her speed was remarkable for a short spin, and altogether she was a very smart boat, somewhat similar in design and finish to the same builders' "Rothesay Castle," already referred to. A single summer, however, on the Rothesay station ended her career on the Clyde, and she was sold to go to the Bombay district. She left the Clyde under sail, but was stranded in the English Channel, and became a wreck. Fortunately her machinery had been shipped by another vessel, and a new hull was sent out.

Among the most memorable of the later accidents was that which occurred in 1850, off the Cloch, between the "Duke of Cornwall" and the "Duntroon Castle," as follows:

The "Duntroon Castle" when coming up the Firth of Clyde on Saturday, 26th October, 1850, in fine weather and calm sea, and when somewhat over half a mile south of the Cloch Lighthouse, saw the "Duke of Cornwall" rounding the Cloch, the "Duke" steering so as to pass outside of the "Duntroon Castle," and about three quarters of a mile off the Cloch Lighthouse. When, however, the "Duke of Cornwall" was about one hundred and fifty yards from the Cloch Lighthouse she suddenly starboarded her helm to pass inshore of the "Duntroon Castle," and as the "Duntroon" must have ported at the same time, the two

vessels came into violent collision, the "Duke" being struck on the starboard side nearly amidships, the "Duntroon" going right through the after hold, and shewing her bow name-board, "Duntroon Castle," almost immediately on the "Duke's" port side. The hold being fortunately full of grain, bags of meal, flour, etc.,



'DUNTROON CASTLE'

deadened the impact. The ladies' cabin being only separated from the hold by a wood bulkhead, those in it had a narrow escape from fatal injury. A trading sloop was the first rescue vessel alongside, to which the "Duke's" passengers were transferred. The first over the steamer's side, on to the sloop's deck, was a "Black Coat" from Southend, Arran, with his sermon bag, evidently in a "funk," and regard-

less of the safety of the ladies. The "Duntroon Castle," when she saw that the "Duke of Cornwall" was sinking, kept her engines going full speed ahead, and thus succeeded in beaching the "Duke" close to the Cloch Lighthouse in a little sandy bay without mishap to anyone.

The "Duntroon Castle" could easily have avoided the collision, had not her Captain's better judgment foolishly given way to the *emphatic* order of an owner then on board, "Keep your course," which led to the disaster.

Captain M'Lean of the "Duke" was tried before the High Court of Justiciary. The first witness was Captain MacDonald of the "Duntroon Castle," who admitted by "a slip" his owner's order, when the President of Court, it was said, remarked, "You should now be in the dock, and the prisoner in the witness box." The jury unanimously acquitted Captain M'Lean.

The only other serious collision recorded during the fifties was that between the "Duchess of Argyle" and the "Emperor" off West Shandon in September, 1852, when the latter was sunk.

CHAPTER VII

THE RAILWAY INVASION

DURING the early sixties the American War, as will have already been gathered, was responsible for the removal of a large number of the best and swiftest steamers on the Clyde, while several were sold to go in other directions. This was the means of bringing to a close the sporting or racing period in the history of the Clyde passenger steamboat.

There was no doubt about the rivalry in those days. It was a contest for supremacy in speed, not only between the steamboat owners themselves, but between them and the railway companies.

Several of the swiftest steamers sailed direct between Glasgow and Gourock, morning and afternoon, while the passengers by the railway steamers were transferred at Greenock. It was genuine sport and business combined, and, when the circumstances were considered, the rivalry was conducted with a remarkable immunity from serious accident. These racers were all cleverly handled, both on deck and in

the engine room, everyone being an expert and alert, and it was in a large measure owing to the intelligence and sailing capacity of the hands on the private steamers that for a long time the bulk of the traffic was secured by the direct boats.

The favourite steamers were the "Ruby," Simons's "Rothesay Castle" No. 3, "Windsor



'RUBY' NO. 11

Castle," and "Neptune." The "Ruby" No. 3 was undoubtedly manœuvred with marked ability, but in point of speed the "Rothesay Castle" was the superior boat. Some amusing advertisements appeared in the Glasgow newspapers of this period, which indicate the high pitch to which the rivalry reached. One of these advertisements, by the owner of the "Rothesay Castle," ran: "Positive, 'Ruby'; comparative, 'Neptune'; superlative, 'Rothesay Castle.'"

In those days, and for nearly a quarter of a

century afterwards, there were no pier signals in operation, so merit had its reward, and it



'ROTHESAY CASTLE'

was during the summers of 1860-61 that the most exciting and reckless racing of the nineteenth century occurred.

Rothesay was the winning post, and it became a matter of supreme indifference to the enthusiastic captains whether or not the passengers were landed at the intermediate piers, until eventually public indignation became so great that the captain of the "Ruby" (Captain Richard Price),



CAPTAIN RICHARD PRICE

who was the most reckless, was forced to resign his command.

As a result of the rivalry some record running was made at that time between Glasgow and Rothesay. The first stop was at Gourrock, and the whole journey to Rothesay was performed in two and a half hours. This is occasionally cited by some as a better performance than that of the present day, but



'NEPTUNE'

those who do so probably take no account of the conditions and circumstances. Restrictions regarding speed on the river were elastic in 1860. The displacement of the boats, too, was very different from what it is now, a difference due partly to design and general arrangement, and partly to Board of Trade regulations.

After the stirring times of 1860 and 1861 a

general lull took place, and more business-like methods began to prevail.

During this decade no fewer than forty-three steamers were built. In most respects the design and arrangement of the hulls were very similar to those of the fifties. The exceptions were ten steamers which had saloons built on the main deck, and twelve which had a poop or half saloon aft. The remaining twenty-one had flush decks.

The vessels were fitted with the following styles of machinery and boilers: 14 had oscillating engines; 13 had steeple engines; 14 had diagonal engines; 2 had diagonal oscillating engines—all with paddles provided with feathering floats; 35 had haystack boilers, and 8 had horizontal boilers.

It will be observed that the haystack boilers continued extremely popular during this period, although, in the case of machinery, taste was equally divided between the steeple, the oscillating, and the diagonal. Diagonal machinery afterwards became the favourite, and held its ground till the end of the century, when the Parson turbine was introduced.

In 1860 the "Earl of Arran" was built by Blackwood & Gordon, Port-Glasgow, to the order of an Ardrossan company for the Ardrossan and Arran traffic. Her commander was Captain Blakeney, the only Irishman who ever commanded a Clyde passenger steamer. He was a most successful and popular skipper especially with the ladies.

In the same year the "Juno," the "Mail," and "Ruby" No. 2 made their appearance. The last-named was built by Henderson for the Rothesay traffic, and after sailing under the famous Price for a single season, was sold for the blockade. The other two were built by Tod & M'Gregor, the "Juno" for the M'Kellar fleet, on the Largs, Millport, and



'JUNO'

Arran station, and the "Mail" for the Campbells' Kilmun trade. Both steamers proved most successful, the "Juno" especially being in every way a well-appointed vessel, and her captain, Sandy M'Kellar, a favourite on the Arran route.

1861 was the memorable year already referred to, in which the famous "Ruby" No. 3, by Henderson of Renfrew, the "Neptune," by Robert Napier, Glasgow, and the "Rothesay Castle" No. 3, by Simons of Renfrew, were

launched. The exploits of these three vessels have already been described. Their career on the firth was short, for all three were quickly picked up for blockade runners; but while it lasted theirs was the most stirring period ever known on the Rothesay route. The reason for this is not far to seek. The ownership of these



'RUBY NO. 111

boats was the last personal connection of Clyde shipbuilders with the actual running of the vessels. Having sufficiently established their reputation, and invested and probably sacrificed enough of their capital, they brought their joint relationship as builders and owners to a close with the sale of the three steamers. At that period the business was considered by them as more or less of the nature of a hobby, and strict attention was not paid to "system and

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check" in respect of tickets and fares. No money was spared in the thorough maintenance of the three beauties, all of them being kept in splendid condition, and they were at any moment ready for a spin at any cost.

After her short career on the Clyde, Simons's "Rothesay Castle" turned out a most successful blockade runner. She survived that service, and was until recently employed on the Canadian lakes under the name of the "Southern Belle."

"Ruby" No. 3 was the well-known Richard Price's last command.

"Neptune" was famous, and is well remembered by her (in those days) unusually small paddle-wheel. Its full details, which should be of interest to the engineer of the present day, were as follows:—

Built and engined by R. Napier & Sons in 1861.

PADDLE STEAMER "NEPTUNE."

Hull.—Length of keel, 200 feet. Half mid depth, 198 feet. Breadth moulded, 18 ft. 5 in. Depth moulded, 8 ft. 5 in.

Tonnage.— $344\frac{9}{16}$ tons. Gross tonnage, 200 tons. Registered tonnage, deducting engine room, 126 tons. Trial draft on frames, 4.25 ft. Keel additional, $3\frac{1}{2}$ in., 4.542. Displacement, 226 tons. C. of F., .508. Mid area, 66 ft. C. of O., .839. Centre of buoyancy, 6.8 ft. Bulkhead, 4.

Engines.—Diagonal, 100 h.p. nominal.

Cylinders, two, 40 in. Stroke, 3 ft. 6 in.
Weight of engine, 46 tons, 4 cwt.

Haystack Boilers.—Two 11 ft. 2 in. \times 12 ft. 6 in. Grate, 134 ft. Heating surfaces, 2460 ft. Number of tubes, 1400. External diameter, 2 in. Length of tube, 3 ft. 10 in. Weight of boilers, 38 tons 2 cwt. Steam pressure, 50 lbs.

Paddle-Wheel.—Over floats, 13 ft. 4 in. Over axis of floats, 10 ft. 9 in. Iron floats, 8 ft. 6 in. Breadth, 2 ft. 8 in. Water in boilers, 20 tons, 14 cwt. Coal, 10 tons. Hull, 111 tons, 8 cwt. Total, 226 tons, 8 cwt. Carries 75 tons per foot at load draft.

Main Saloon, $34\frac{1}{2} \times 15 \times 7$ —3622 cubic ft.

Dining Saloon, $25 \times 16 \times 7\frac{1}{2}$ —3000 „ „

Steorage, $22 \times 9 \times 7\frac{1}{2}$ —1485 „ „

Others, 2839 cubic ft. Total, 10946 cubic ft.

Trials.—Cumbrae to Cloch. Revolutions, 67. Pressure, 41.8. Vacuum, 24. Indicated h.p., 995. Time occupied doing run, 46 min. 30 sec. Rate of speed, 20.375 statute miles, 17.63 knots. Slip, 21%. Wind strong and heavy southerly swell.

Measured mile, 1. Time, 2.57. Strokes, 70.

2. „ 3.2 „ 71.

3. „ 2.59 „ 70.

4. „ 3.3 „ 71.

5. „ 3.2 „ $71\frac{1}{2}$.

6. „ 3.0 „ 72.

Vacuum, $23\frac{3}{4}$. Steam about 46 lbs. Greatest indicated h.p., with 47 pressure, making 72 revolutions, 1321 h.p. Slip 24%. Mean draft,

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4 ft. 6 in. Area, 68.5. Displacement, 233 tons. Maximum recorded speed, 2'48" per mile.

N.B.—Trial before going to America, bottom foul.¹

It is interesting to note that at this period each builder had his own type of machinery and boiler. Thomson's were the oscillating engines and horizontal boilers; Henderson, Colborne & Co.'s the diagonal engines and haystack boilers, and Tod & M'Gregor's and Barclay, Curle & Co.'s steeple engines and haystack boilers. The average boiler pressure was forty pounds, and the patent wheel or feathering float was in general use.

Another steamer launched in 1861 was the less famous, but longer known, "*Sultan*." She was built by Barclay, Curle & Co., for M'Kellar, of the Helensburgh steamers, and he fitted her with the machinery of the "*Wellington*." For a single season she sailed as one of the "*Green boats*" in the Kilmun trade. In the following spring she was purchased by Captain Alexander Williamson, and became the first of what was afterwards called the "*Turkish fleet*." She sailed regularly in the Glasgow, Rothesay, and Kyles of Bute trade for many years, and during most of the sixties did a roaring traffic. This steamer was the writer's first command, when he was twenty years of

¹ The above details are authentic, having been obtained from the records of Robert Napier. For this and other information I am indebted to the kindness of Mr. James Napier, Oswald Street, Glasgow.

age, and very proud he was of her and of his occupation. The old craft has been re-named the "Garelochy," and is still doing duty under the MacBrayne flag on the Caledonian Canal.

Only one steamer was built in 1862. This was the "Kingston," built by Wingate. She



'SULTAN'

was a "freak," and did no good, getting ultimately into the hands of Sunday steamboat owners.

The traffic seemed at this time to be in a state of transition. The experience of ship-builders who had been owners and had sold their steamers to the Americans, did not tempt them to rebuild, while the prospect of competition by the Wemyss Bay Railway, then in

course of construction, deterred others from entering the field. As a consequence the few remaining owners on the Clyde had a very good time, which was no doubt helped by the fact that the Board of Trade did not in those days devote their "kind attention" to the comfort of the sailing public.

In 1863 "Iona" No. 2 was built by J. & G. Thomson, to replace her predecessor of the same name. Her career on the firth was, however, very brief. After a single summer on the Glasgow and Ardrishaig route, she was sold for a blockade runner. She was as unfortunate as "Iona" No. 1. as she was lost in the Bristol Channel.

In this year also the "Victory" was built by Barclay, Curle & Co., for Captain Duncan Stewart. She ran in the Rothesay trade under her owner's command until he sold her to the Wemyss Bay Railway Company. She was afterwards acquired by Duncan Dewar, who re-christened her "Marquis of Lorne," and employed her in the Sunday traffic. Ultimately she passed into the hands of the Messrs. Hill. By them she was re-named the "Cumbrae," and employed on the run between Fairlie and Millport till she was converted into a coal hulk.

In 1864 "Iona" No. 3 (the "Iona," of today) made her appearance. She was eleven feet longer and had six inches more beam than her predecessor, but in other respects she was identical. In fact, she inherited the deck saloons and most of the cabin fittings of No. 2,

for as these were useless for the intended career of the vessel among the Confederates, they had been left behind. As a consequence we have, in the "Iona" of to-day, the only remaining example of the saloon excursion steamer of forty years ago. Nine years after she began to run there was fitted on board



'IONA' NO. 111

the first "telegraph" by Chadburn for communicating between the bridge and the engine room. This superseded the old "knocker," which nevertheless was to be seen in use on some of the older steamers until a very few years ago. At the same time steam steering gear was fitted on board by Bow, M'Lachlan & Co., of Paisley, this being its first appearance on a Clyde passenger steamer. Both of

these installations were considered great additions to the efficiency of the vessel.

As might be expected, it was considered in those days no ordinary privilege to be on terms of intimacy with the officers of "our only tourist boat." Captain M'Gowan was well known and highly respected as commander of the previous "Ionas," but he only sailed the new vessel during half the season of 1864, and was then succeeded by the late Captain John M'Gaw. The pursers were John Murray, a most popular man, and Alexander Paterson, the present energetic purser of the "Columba." The latter was, of course, at that time a mere stripling. At the head of the catering department was the late John M'Aulay, who proved himself capable of satisfying the most fastidious taste, and could have done so without the encouragement of the liberal supply of appetising ozone obtainable on the firth.

As was to be expected, the success of the two previous seasons revived the spirit of rivalry among Clyde steamboat owners, with the result that in this year, 1864, nine steamers were added to the passenger fleet. Not the least memorable of these was the "Vivid." She was a smart little flush-decked steamer built by Barclay, Curle and Co., for Captain Bob Campbell's Kilmun service. She was afterwards acquired by Captain Buchanan, and employed in the Rothesay trade until committed to the scrap heap in December, 1902.



CAPTAIN M'GOWAN



CAPTAIN M'GAW



JOHN MURRAY



ALEX. PATERSON



JOHN M'AULAY

The "Eagle" No. 2 was the only Clyde passenger steamer built by Charles Connell & Co. She was built for Captain Buchanan, and was the first of a new design. With the usual flush deck forward, she had a raised quarter deck or half saloon, with an extensive hurricane deck. She was fitted with two haystack boilers forward, and a pair of fixed diagonal engines by D. & W. Henderson of the Anchor Line. Her machinery as a whole, however, proved too heavy, and in 1878 a new hull was built for it, which was named the "Brodick Castle." The "Eagle" was then fitted by William King & Co., with one haystack boiler and a single diagonal engine which gave better results in every respect. During her entire career on the Clyde she plied between Glasgow and Rothesay, being especially popular, in her early days, on the four o'clock run from the city. Latterly her sailings were extended to Arran, and in the end she was sold to go to the Manchester Canal. The passenger traffic there did not prove a success, and in consequence she went into the scrap heap at Liverpool.

The building of the "Kyles" by Caird & Co., and the "Largs" by Wingate in this year for the Wemyss Bay Railway Company heralded a new departure which was viewed for a time with much concern by the owners of the up-river steamers. The railway was not opened until May in the following year, when the "Bute" was built, also by Caird & Co., as

a consort to the "Kyles." Both of these were well-appointed steamers, with deck saloons fore and aft, and were most attractive boats for the development of the new route to Rothesay. The "Largs" which attended to the Largs and Millport traffic, was a much smaller boat, with



'VIVID'

flush deck fore and aft, and a large bridge between the paddle-boxes.

Evidently it was the intention of the Wemyss Bay Railway directors to "scoop the pool" with their new fleet. And this, it appears from later experience they might easily have done. But neither the railway nor the boats proved a success. In accounting for this it is difficult to avoid the conclusion that sufficient care and economy were not exercised by the management. The results might have been even

worse but for the existence of the obsolete M'Kellar fleet on the Millport station. On the Rothesay route, the direct boats continued to carry the greater part of the traffic. Two years later the "Kyles" and "Bute" were sold to London owners, and the "Argyle" and "Victory" substituted, but even with these in-



'EAGLE' NO. III

expensive steamers the management seemed unable to make ends meet, and early in 1869 the Steam Packet Company collapsed. An arrangement was then made between the Wemyss Bay Railway Company and the private steamboat owners. Messrs. Williamson, M'Lean, and Buchanan undertook to attend to the Rothesay trade, and Messrs. Gillies & Campbell and Graham, Brymner & Co., arranged that their steamers should

call at Wemyss Bay on the route between Glasgow, Greenock, and Millport. Instead, however, of all these steamboat owners (Gillies & Campbell excepted) doing their best to develop the traffic as they ought to have done, some of them were foolish enough to think that they could bring about the collapse of the Railway Company, and wipe out



'ARGYLE'

the objectionable Wemyss Bay route altogether. But they were not allowed to proceed very far with this policy. In their determination to secure a reliable service the Railway Company made a new exclusive arrangement with Gillies & Campbell, and placed the "Largs" and "Argyle" under their management, to run along with the old Largs boat, the "Venus." At the same time they reduced the through return fares between Glasgow and Rothesay, and Glasgow, Largs, and Millport to

2s. 6d. As a consequence the traffic went up at a canter, very much to the advantage of the steamboat owners who had made a good arrangement with the Railway Company. The compact lasted till 1890, with an interval of three months during the winter of 1880/81 when the steamers were withdrawn on account of a dispute between the Railway Company and the steamboat owners.

Before relegating the subject of the Wemyss Bay route to the next decade, the ultimate history of the "Kyles" may be referred to. This steamer was re-named the "Princess Alice," and after running for several years on the Thames, had a most tragic end. On the evening of 3rd September, 1878, she was returning up the river with a full complement of passengers, when she was run down by the screw steamer "Bywell Castle," and sank immediately. Over six hundred of her passengers were drowned. This was the greatest calamity that has ever happened in the history of river steam navigation.

Another steamer, the "Arran Castle," built in 1864, also had a tragic end. She was a smart saloon steamer, constructed by Kirkpatrick M'Intyre, and engined by Rankin & Blackmore. Her owner was Watson of Sunday steamer fame, and he sailed her in the Glasgow and Arran trade for a single season. In the following spring he sold her to a London company, and took a special party of friends with him to deliver the vessel

in the Thames, but she never reached her destination, and is believed to have gone down with all hands off the Isle of Man.

In this year were built the last of the Dumbarton steamers, the "Leven" and the "Lennox." Both sailed between Glasgow and Dumbarton, but the opposition of the railway soon ended their career. They were sold to go to the River Plate, but both were lost in home waters, one off the Isle of Man, and the other in the English Channel.

"Chancellor" No. 2, built and engined by Blackwood & Gordon, was of the same design as the Loch Lomond steamers, with deck saloons fore and aft, and sponsons built all round from stem to stern. She was employed on the Arrochar service till 1880, when she was then re-named the "Shandon," and was relieved by another "Chancellor." She formed one of the Keith & Campbell fleet of Greenock, Helensburgh, and Garelochhead steamers, until sold to a Manchester company. They re-named her the "Daniel Adamson," and put her on the Ship Canal. She returned to the Clyde for a short period, and ultimately went into the scrap heap.

The "Undine," the last steamer built and owned by Henderson, Colborne & Co., was



CAPTAIN WATSON

not an improvement on her predecessors. She was a long, narrow, crank boat, good enough when running light, but, when she was loaded, many a poor soul had a very "bad quarter of an hour on board." Our present day Board of Trade, I am satisfied, would have questioned her stability. In those happy-go-lucky years, however, the captain was supreme, except when, in response to an invitation, which was not infrequent during the decade of the sixties, he appeared to answer for his deeds before the River Bailie. Captain Macaulay of the Helensburgh steamers became associated in the ownership of the "Undine" with Captain Duncan Stewart of the "Alma" and "Victory," and maintained morning and forenoon sailings from Glasgow to Rothesay with her until she was sold to Italian owners.

It is interesting to note that the "Undine" was fitted with the first single diagonal engine with a Scotch boiler.

The following year, 1865, was one of caution on the part of steamboat owners, the future being rendered uncertain by the opening of the Wemyss Bay Railway in the month of May. Only three steamers were added to the register. Of these the "Bute" has been already described. There was also the "Vale of Clwyd," built by Seath for the Dunoon and Ayr traffic in summer.

The third steamer was the "Rothesay Castle" No. 4. She was built by Henderson & Co. of Renfrew, to the order of Mr. Watson

of the "Arran Castle." The death of her owner appears to have delayed her completion, and she was turned out in an unfinished condition during the Fair Holidays. Her machinery was made by Barr, and his brother, Captain John Barr, now of the Loch Goil Company, commanded the vessel. She sailed in the Glasgow and Rothesay trade till 1874, when she was purchased by Captain William Buchanan for the Ardrossan and Arran traffic. Ultimately she was sold to French owners, and is now, or was lately, sailing at Bordeaux.

1866 was the last year of extensive steamboat building by private owners. In that year, evidently with a view to resist the inroads of the Wemyss Bay and North British Railways, as well as the prospective competition of a third railway, the Glasgow and South-Western, which was about to enter the field with its extension to Greenock, no fewer than twelve steamers were added to the fleet.

The "Chevalier" was turned out by J. & G. Thomson to the order of David Hutchison & Co., for their West Highland traffic in summer, and for the Glasgow and Ardrishaig trade in winter. She was somewhat similar in design to the "Iona," but smaller, and was commanded by a most popular skipper, Duncan Campbell,



CAPTAIN DUNCAN CAMPBELL.

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who continued in charge till his death at a comparatively early age. She is now in charge of a very capable officer, Captain Macmillan, and is still doing duty on the station for which she was built.

The "Athole" and "Argyle" No. 3, were



'ATHOLE'

built by Barclay, Curle & Co., to the order of Captain Duncan Stewart for the Glasgow and Rothesay trade. The former was of the semi-saloon or raised quarter deck type, while the latter was of the ordinary flush deck design with no particular finish about her. She had the engine of the "Alma" fitted on board, and was generally constructed on economical

principles. These boats were managed by the Stewart family, father and three sons—Donald, Bob, and Allan—none of whom, except the father, had a long career. The "Argyle," as already stated, is still doing duty on the Tay, but will be long remembered as one of the old Wemyss Bay stagers, on which station she did good service for about twenty years. The "Athole," although a stronger and better boat in every way, is now in the scrap heap. She was the first steamer purchased by the Glasgow and South-Western Railway Company when they opened Princes Pier, Greenock, but, like the Wemyss Bay steamers, appears to have been badly managed, and ultimately was disposed of to Captain Alexander M'Lean, who ran her as a consort to the "Marquis of Bute," which he built in 1868.



BOB STEWART

The "Vesper," built by Barclay, Curle & Co., for Captain Bob Campbell's Kilmun trade, was of similar design and finish to the "Athole," and had the engine of the "Express" fitted on board. She only sailed on the Clyde for one year, after which she was sold for a blockade runner, but was lost on her passage off Lambay Island.

The next two in the list were rather famous in their way. They were the "Meg Merrilies"

and the "Dandie Dinmont," built by A. & J. Inglis to the order of the North British Railway Company. This company had acquired the Edinburgh and Glasgow Railway. Its chairman was of a fighting disposition, and wished to be on a level with his rival on the other side of the river. He also made a very bold bid for the Ardrishaig trade from Helensburgh, in opposition to the Messrs. Hutchison. This contest was short-lived, but very lively while it lasted. What with East Coast management, however, and frequent accidents to their steamers, besides the general collapse of the company itself, the North British Railway was forced to withdraw from the contest. The private owners, after a stiff fight with the N.B. and the Wemyss Bay steamers (who also sailed to Ardrishaig for one season), carried the day, and, so far as the Ardrishaig and West Highland trade is concerned, the owners of these boats have since carried on the trade with conspicuous efficiency in connection with the three railway companies.

The "Meg Merrilies" was removed to the Forth, and the "Dandie" did duty in an intermittent way between Helensburgh, Dunoon, and the Holy Loch until the opening of the pier at Craigendoran, when she was sold to go to Southampton waters.

In those days the North British Company was at a decided disadvantage, compared with its rivals—the Caledonian and Glasgow and South-Western Companies—in working the

coast traffic. A serious inconvenience was the long distance at Helensburgh between the railway station and the steamers, though the road to be traversed was certainly pleasanter than the East Quay Lane at Greenock, through which Caledonian passengers had to make their way. They had also to contend with the awkward slip or wedge form of the pier at Helensburgh, which was not improved upon till 1870.

The next steamer in the list was the "Vale of Doon." She was built by Seath for Robertson, Seath & Steel. After sailing in the Ayr trade for a few summers, she was sold, and went to the River Plate.

Another important development in this year was the formation of a company of Greenock and Helensburgh gentlemen, under the management of Graham, Brymner & Co., to re-establish a reliable steamboat service to Helensburgh and the Gareloch. The Company put four smart little steamers on the route—the "Ardencaple" and "Roseneath," built by Robert Duncan & Co.; the "Levan," by Blackwood & Gordon; and the "Ardgowan," by Lawrence, Hill & Co. All were of the quarter deck type, and all were engined by Rankin & Blackmore. The "New Green boats," as they were popularly called, promised at first to be highly successful, and were well suited for the traffic, but the company did not exist long. The crews of the steamers were, without exception, the most undisciplined in the experience of the Clyde

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passenger boats, and the owners found no other course open than to sell the property.

The "Roseneath" went to Waterford, and the other three steamers were disposed of to London owners. The winding up of this company was undoubtedly a misfortune to the district they served, and retarded its development as a summer resort.

1867 was a very lean year so far as the building of Clyde passenger steamers was concerned,



CAPTAIN ROBERT YOUNG

only two new craft being put upon the water. Of these the "Elaine" was built by Robert Duncan & Co., for Graham, Brymner & Co., for the Millport trade. She was a smart little poop deck steamer, and was commanded by Captain Robert Young, perhaps better known as "Captain Kid,"¹

a soubriquet earned by the fact that he was a trifle more particular about his personal appearance than was common to his class. He usually appeared on the bridge wearing the finest of kid gloves, and there is a tradition that on the passage from Glasgow to Millport he has been known to ascend to his

¹ The original Captain Kid was a very different personage from the kindly, if somewhat over-refined, bearer of the soubriquet on the Clyde. He was one of the terrible pirates who followed in the wake of the famous Buccaneers of the Spanish Main, and he was ultimately hanged at New York for his misdeeds in the year 1701.

post in three successive suits of clothes. The "Elaine" was ultimately acquired by Captain Buchanan, and remained in his possession until broken up a few years ago.

The other steamer of the year was the "Dunoon Castle," built by Wingate for the Dunoon and Rothesay Carriers. The carriers, four in number, were very much dissatisfied with what they considered the exorbitant charges made by the steamboat owners for the carriage of their goods. Consequently, like the MacLeans at the Flood, they decided to have a boat of their own. The enterprise, however, turned out disastrous in every way. At first the running of the boat created a strong feeling between the owners of other steamers and their public supporters, which had the effect of infusing a little life into the competition. But the inexperience of the carrier company in running a steamer made them an easy conquest for their more experienced rivals. The boat passed into the hands of Messrs. Hill & Co., who re-christened her the "Arran," and afterwards sold her to Gillies & Campbell who ran steamers in connection with the Wemyss Bay Company. After the stoppage of this company's steamers she passed first to Liverpool, then to London, and is now, I am informed, doing duty as a tug on the River Shannon.

Up to this period the Wemyss Bay Railway enterprise proved no more than a doubtful success. The owners of the up-river boats

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were encouraged accordingly to increase their efforts to retain the rapidly developing traffic to the coast. With this object in view several steamers were added to the up-river fleet,

In 1868 Graham, Brymner & Co. were encouraged to build the "Lancelot," to compete with the railway on the Largs and Millport



'LANCELOT'

route. In the summer of the following year an arrangement was made with the railway company for her to call at Wemyss Bay on the way up and down. Her service, however, proved so unreliable and unsatisfactory to the railway company that the arrangement was broken off. The "Lancelot" was of the poop deck type, and was altogether a very smart little boat. She was well managed,

too, by Captain Bob Young. But after a few years she passed into the hands of Gillies & Campbell for the Wemyss Bay service. She is now running at Constantinople.

Another steamer added to the list was the "Marquis of Bute." She was built and engined by Barclay, Curle & Co. for the brothers



'MARQUIS OF BUTE'

M'Lean, and rapidly made a good reputation on the Glasgow and Rothesay route. For many years she was a most successful boat, and was managed with economy and care; but latterly the alertness of the management relaxed, too great confidence was reposed in subordinates, and slowly but surely the prosperity of the steamer declined. This result was the more to be regretted, as it deprived

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a very worthy old man of the comfort and leisure earned by half a century of constant toil. Homish M'Lean had contributed his own share not only to the success but to the genial traditions of the passenger steamer enterprise on the Clyde.

Of the same date, and of much the same



'SULTANA'

size and design of hull and machinery, was the "Sultana." She was built by Robertson & Co., Greenock, and engined by King & Co., Glasgow, to the order of Captain Alexander Williamson, for his Rothesay and Kyles of Bute trade. During the first ten years of her career the writer had a very close and intimate association with this boat, having wrought as an apprentice engineer in her construction, and

having subsequently occupied the posts of emergency engineer and skipper on board. Somehow, during most of the period of his skippership there seemed to be great necessity—or it may have been great temptation—to relieve the monotony of ordinary plain sailing, the consequence being a weekly or bi-weekly invitation to make explanations to the River Bailie, to the tune of £5 per visit.

Upon one occasion his worship's invitation arrived most inopportunistically. The day and hour appointed for the interview had already been set apart by the young steamboat captain for an appointment of a very different sort—no less than his appearance, in company with a certain young lady, for the performance of a solemn



CAPTAIN JAS. WILLIAMSON

and important ceremony, before the Rev. Dr. Knox, of Pollok Street U.P. Church, Glasgow. It was a very awkward *contretemps*, but the good old Bailie proved himself to be by no means lacking in good humour. On being informed of the difficulty he kindly cancelled the appointment with himself, and on this occasion the "fiver" was expended on the youthful skipper's honeymoon.

One of the achievements of this handy little boat was to make the Wemyss Bay Railway and Steamboat Company "sit up," and effect

a reduction of forty minutes in the run between Glasgow and Rothesay. This brought the journey by Wemyss Bay down to eighty minutes, a performance which has been maintained to the present time. The acceleration also benefited the Largs and Millport traffic, completely eclipsing the up-river steamers, and putting them out of the running in that direction.

The "Sultana" for several years ran in connection with the Glasgow and South-Western Railway from Princes Pier, Greenock, direct to Innellan and Rothesay. But after the Wemyss Bay acceleration this had to be abandoned, and the course taken was to Kirn, Dunoon, Innellan, and Rothesay. This route was covered, including stops, in fifty-seven minutes—a performance which still remains the "record." On one occasion the little steamer made the run from Princes Pier to Rothesay and back in the time it took one of the Dublin skippers to get alongside the pier.

These results were not achieved without some exciting incidents. It can be understood that on a Monday morning, when the traffic from the coast is heaviest, it was the object of each captain to get his passengers first to the train, and so of course first to Glasgow. As the trains were sent off in succession as soon as they were filled, a skipper's promptitude might enable his passengers to reach Glasgow a full half hour before their fellows, an advantage which naturally added greatly

to the popularity of the successful boat. One Monday morning three rival steamers were manœuvring against each other for the foremost place at Princes Pier. They were still skirmishing when the nimble "Sultana" coming up seized her opportunity and slipped in to the pier. The triumph cost another "fiver," but the passengers were in Glasgow long before those on board the rival boats, and this was well worth the money. On another occasion the handy little craft furnished a treat even more exciting to devotees of steamboat prowess on the Firth. It was on a Saturday afternoon, when, of course, all the steamers are crowded, and every one of the hundreds of passengers was in haste to reach his destination and join his friends for the week-end holiday. One steamer was discharging at Dunoon Pier, and four others were waiting their turn. At that moment the "Sultana" was three miles off. Nevertheless she took Dunoon Pier first. The scene on the pier was "animated," the language of the rival skippers was anything but parliamentary, but the fun was excellent. Needless to say, there were no pier signals in those days; the rule was simply "first there." These are only a few of the incidents which helped to impart variety to the day's work, and to relieve the monotony of plain sailing.

The "Sultana" was sold at last to French owners, and was recently sailing on the Seine.

Last of the steamers built in 1868 was the

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"Lady Mary." Her owner was the late Duke of Hamilton, and she was built by Blackwood & Gordon, for the Ardrossan and Arran traffic. She developed the trade on the route to such an extent that in 1870 the Duke's commissioners were induced to order a larger and faster boat. The builders of the new steamer



'GUINEVERE'

took the "Lady Mary" in part payment, and early in 1871 sold her to Mr. Watson, of Skelmorlie. The new boat, the "Heather Bell," however, proved a failure, and Mr. Watson was fortunate enough to get the "Lady Mary" chartered for her old station for the better part of two years. In 1873 the "Lady Mary" was employed in odd trips, and in December of that year was sold to the commissioners of the

Marquess of Bute for service in the Bristol Channel, where, I understand, she still remains.

Only one steamer was launched in the last year of the sixties. This was the "Guinevere." She was built by Robert Duncan & Co., and engined by Rankin & Blackmore to the order of Graham, Brymner & Co. In charge of Captain Bob Young she ran in the Glasgow and Arran service in opposition to the "Hero." The "Guinevere" proved very popular, and had a successful career for about ten years. Towards the latter part of that period she was



JOHN REID, JR.

owned by Keith & Campbell, and skippered by John Reid, Jr., who was a general favourite. Under the care of these owners she was not so well maintained as previously, and she gradually drifted into evil days. Ultimately she was sold to the Turks, but on the voyage to Constantinople was seen by the crew of a Clan Liner to go down with all hands in the Bay of Biscay.

CHAPTER VIII

RAILWAY RIVALRIES

THE close of the sixties saw the real beginning of the diversion of the passenger traffic from Glasgow to the coast from the direct river steamers to the railways. "All the way by boat" had lost its charm for the multitude. Part of the reason for this is perhaps to be found in the easy-going methods of the up-river steamers, which began to be out of date, but the change was no doubt also due to the malodorous state of the upper reaches of the river in the hot weather of the summer months. The most effective cause was the greater expedition and more business-like methods of the railways. The first inroad, as has been already mentioned, was made by the Glasgow and Greenock Railway in 1841, when it put the "Isle of Bute" and "Maid of Bute," and afterwards the "Pioneer" and the "Petrel," on the Dunoon, Rothesay, Largs, and Millport routes. Then in 1852 the Caledonian Railway, dissatisfied with the independent steamer service, built for their own use the "Greenock," the

"Glasgow Citizen," the "Eva," and the "Flamingo," to attend to the Gareloch, Holy Loch, Dunoon, and Rothesay traffic. The company, however, tired for the second time of steamboat owning, and after two years' service sold its fleet. As a result, the railway companies and the independent steamboat owners were once more brought into friendly association, and from the competition among the latter the railway companies obtained a controlling power over the traffic for the landward part of the journey. Previous to the opening of the Glasgow, Dumbar-ton, and Helensburgh Railway in 1858, an agreement was made between that Company and the Caledonian Railway Company that certain steamboat routes should be allocated to the two companies, that beyond Greenock to the Caledonian, and that beyond Helensburgh to the North British. In furtherance of this agreement the two companies agreed to adopt the same policy in arranging terms with the steamboat owners. In this agreement the steamboat owners were not consulted. Nor was it necessary that they should be. In their disunited and disorganised state, the boat proprietors were not in a position to resist, and could be relied on to submit to, any terms.

Two years later, in 1860, an effort was made by a steamboat owner to checkmate the railway companies by forming a "combine" of the owners of the Clyde passenger steamers. The suggestion was not adopted by the private owners, and the result was that the control of

the traffic was finally and irretrievably lost by them. The proposal was put forward in a pamphlet entitled "A suggestion to the Proprietors of the Clyde Passenger Steamers, by one of themselves." This was privately printed and issued with the note—"As the only copies of this paper that have been thrown off have been exclusively sent to the Proprietors of Clyde Passenger Steamers, it is hoped that they will not be given away, but treated as being confidential."

The writer of the pamphlet began by pointing out the disadvantages under which the owners of Clyde passenger steamers then ran their vessels. "For the past two or three seasons," he said, "these vessels have in some instances been carrying passengers distances of forty miles for sixpence in the cabin; and in no case can it be shown that the charge of a halfpenny per mile per cabin passenger has been obtained for any distance betwixt Glasgow and the limits of Rothesay, Largs, Millport, &c., as a regular fare, excepting, it may be, for short intermediate distances, while of course the charges for steorage passengers have been proportionately low." In consequence, he averred, the Clyde steamers rarely paid more than their working expenses. At the same time, he pointed out, the vessels were not marketable commodities. Though a large number of steamers were in the market there were no buyers, except at ruinous prices. This state of affairs he attributed partly to the com-

petition of the railways recently opened on both sides of the river, and partly to the fact that too many vessels had been built, but principally to the keen and ruinous competition among the steamboat owners themselves.

As a remedy, he urged the adoption of the Joint Stock Companies Acts of 1857 and 1859, and the formation by the steamboat owners of a strong limited liability company, which should take over all the vessels at a fair valuation, and run them in an economical and businesslike way. If this were done owners who, in consequence of the existing competition, could not get £3,000 for a steamer, might expect to receive for her £4,500 in the stock of the company. That the company would prove successful and pay good dividends to its proprietors, he held, might be considered certain from the advantages it would possess. It would sail the vessels of its fleet upon proper principles. There would be no scrambling for favourite hours and trades, no such absurdity as three, or even four, vessels starting from, or arriving at, a port at the same hour, and so playing the ruinous game of "beggar my neighbour." If outside competition should arise, the company, he pointed out, would be able to beat it down. "Having a sufficiently large fleet, it would sail its vessels at regular hours throughout the day, while the individual competitors, having a limited number of vessels, would sail theirs at isolated hours. It would be competent for the strong company to reduce

its fares at the opposed hours, and keep them up at the unopposed hours," and so drive its competitors from the field.

The chief advantage, however, which the combination would have over a number of individual owners lay in the fact, pointed out by the writer of the pamphlet, that it would be able to make better terms with the railway companies: Here, evidently, lay the gist of the whole matter: "In consequence of the disorganised procedure of the passenger steamers," he declared, "the Greenock Railway has them, to a certain extent, at its mercy, and, therefore, the humiliating sight is seen every season of the steamboat owners submitting to the dictation of the railway, in consequence of the little patronage the latter has in its power to confer, in the shape of conjoint fares and continuous hours from Greenock to the several watering-places. The steamers actually contend for this questionable privilege, set their hours to and from Glasgow to accommodate the railway, and reduce their share of the fares even below the miserable ordinary rates that their own intestine competition has brought about, and all this to propitiate the railway magnates who get the lion's share of the conjoint charges, and reap all the benefits going. If a strong, combined company, however, were formed, the case would be completely altered; for then, *if found necessary*, the steamboat company could dictate, instead of being dictated to."

The argument of the pamphlet, it must be allowed, was reasonable and businesslike. The policy advocated was, in fact, exactly that which has been carried out with conspicuous success in numerous industrial enterprises since that time. On looking back, in the light of later experience, there appears little doubt that the proposal embodied the last and only hope for the continuance of a prosperous steamboat ownership on the Clyde, independent of the railway companies. For various reasons, the most prevalent being mutual jealousy, it was not adopted, and the ruinous rivalries and consequent decadence of private ownership went on.

The Wemyss Bay Railway and Steamboat Company was now permanently established, and controlled the bulk of the important traffic to Rothesay, and all the traffic to Largs and Millport. As a consequence, the up-river boats were left to survive or to starve on the traffic to Dunoon and the smaller watering-places on the Argyle shores, and beyond Rothesay the traffic between the intermediate piers and the enthusiasts who preferred the long sail from the Broomielaw.

At this period the coast towns may be said to have been at the zenith of their popularity as "family summer resorts." Great was the demand for house accommodation, and for ground to build more. In the Kyles of Bute, especially, the demand was greater than the supply. The proprietors, there, however,

though poor, were proud, and would suffer no part of their territory to be invaded by city folk, and accordingly they lost a golden opportunity.

Towards the end of the sixties the Glasgow & South-Western Railway Company, or, as it was then called, the Greenock & Ayrshire Railway Company, sought powers to connect Greenock with Ayrshire. These were obtained without difficulty, as, from a superficial point of view, the extension did not involve interference with the territory served by the other companies. But no sooner was the bill passed than the Caledonian Railway Company became aware that it had been caught napping. The real object of the enterprise was seen to be the creation of a Glasgow and Greenock line for local and coast traffic, in direct competition with the existing lines of the Caledonian and North British Companies. The enterprise, of course, was perfectly legitimate, but its real object had been concealed for diplomatic reasons.

The new railway to Princes Pier was opened in December, 1869. For a time the private steamboat owners hesitated to connect with the new terminus. The reason for this was, no doubt, partly their experience of the action of the other two railway companies, but there is reason to believe that a still stronger cause was the personal influence of Mr. Gilchrist, the Greenock representative of the Caledonian Company. He was on intimate terms with

all the steamboat men of these days, and his power over them was astonishing. This was the position of affairs when, by way of experiment, the writer, who was master of the "Sultana" at the time, made the first call at the new terminus. It was a Monday morning, and there was a crowd of passengers on board on their return from the coast. They nearly all made a rush for the South-Western train.

The fat was now fairly in the fire. Not even Mr. Gilchrist could stand in the way of improved facilities. The travelling public were glad to be rid of the malodorous atmosphere of the passage from the Caledonian station by East Quay Lane, no less than of the inconveniences to which they had been sub-



JAMES GILCHRIST

jected at the old Custom House Quay. The traffic there had for a long period been seriously congested, and on all occasions the passenger steamers were treated with scant courtesy. They were frequently forced to lie two tiers deep outside the cross channel steamers, over whose much-cumbered decks the passengers from the Caledonian trains had to find a way as best they could. It was little marvel that the public showed an immediate preference for the convenient access by Princes Pier.

It must be allowed that in this crisis the

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energetic and loyal official of the Caledonian Railway Company acted undiplomatically. Instead of setting to work to improve the facilities at the Custom House Quay, he tried a hostile policy. He deliberately delayed the down traffic from Glasgow. The steamers were by this means forced to wait for the Caledonian passengers at Custom House Quay, and as a consequence were late in reaching Princes Pier, where the South-Western passengers were of course kept waiting. By throwing this obstacle in the way of the South-Western traffic he expected to induce passengers to continue travelling by the Caledonian. But the actual result was that some of the steamboat owners broke away from his influence. The climax arrived when an attempt was made to delay the mail steamer, of which the writer was in command. The steamer had a connection to make at Princes Pier, and due warning was given to the Caledonian Company that if the mails were late they would be left behind. They were late, and they were left. The result was that the Post Office forthwith severed the Caledonian connection and sent the mails by Princes Pier.

To defeat its opponent's tactics the South-Western Company purchased the "Athole" and the "Craigrownie" to run in connection with its own trains. The Caledonian Company replied by subsidising the "Dunoon Castle" and Bob Campbell's boats, the "Vivid" and the "Vesta," and for a time the competition

was lively enough. But gradually the superior facilities at Princes Pier prevailed, and its older rival carried fewer and fewer passengers, till scarcely any traffic went through East Quay Lane. The railway companies then for the third time ceased to own and subsidise steamers, and the traffic settled into new channels. The Glasgow and South-Western was supreme on the upper reaches of the Firth, and the Caledonian, *via* Wemyss Bay, on the lower.

So firmly indeed had the Wemyss Bay route established itself in the popular esteem that when the tunnel between Port-Glasgow and Upper Greenock, on the Wemyss Bay line, collapsed, passengers for Innellan and Rothesay actually took train to Greenock, walked or drove to Upper Greenock station, and re-trained there for Wemyss Bay. All this notwithstanding the fact that a direct connection to Innellan and Rothesay existed *via* Princes Pier. Such conspicuous loyalty to the Wemyss Bay route, in the face of great inconvenience, convinced the writer that it was hopeless to continue the up-river passenger traffic, and he determined to retire from the contest; and as a matter of fact "all the way traffic" by steamer from Glasgow rapidly declined, and the system of "rail and steamer" to and from the coast became universal, except on Saturday afternoons and public holidays.

1870 saw the building of the "Bonnie Doon," the "Carrick Castle," and the "Craighrownie." Of these, the "Bonnie Doon" ran

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on the Glasgow and Ayr route during summer, and the "Carrick Castle" sailed successfully in the Loch Goil trade for many years, till she went to Leith. Ultimately she was transferred to Cardiff, and re-named the "Lady Margaret." The "Craigrownie" was intended to oppose Bob Campbell on the Kilmun station, but during the first year of the opposition the public showed so decided a preference for Captain Bob's established steamers that the new steamer was sold to London owners.

In the following year two vessels were put upon the water. The "Lorne," built for Captain Duncan Stewart by Macmillan of Dumbarton, and furnished with engines by J. & J. Thomson, plied on the morning run from Glasgow to Rothesay. Although small compared with the present-day craft, she was considered too costly for the trade, and her owner is reported to have danced a hornpipe when he sold her at the end of her first season to go to Copenhagen. She was a very smart, able little boat, somewhat after the design of "Ruby" No. 3, and was a distinct feature on the river, but her coal and wages bills, as compared with those of the "Victory" and "Argyle," were more than her owner was prepared to tolerate.

The other steamer of the year, the "Heather Bell," was built by Blackwood & Gordon, Port-Glasgow, to the order of the Duke of Hamilton, to replace the "Lady Mary" on the Ardrrossan and Arran service. As has been already

mentioned, the new boat was not considered a success, and after occupying the station for only two years, she was sold for Southampton. This brought His Grace's ownership of steamboats to a close. The fact that his enterprise had not been in the most experienced hands no doubt assisted him in his decision. The Ardrossan and Arran service then passed into the hands of Captain William Buchanan, who placed the "Rothesay Castle" on the station, in charge of Ronald M'Taggart.

Only two steamers were built in 1872. One of these, the "Gareloch," was built by Henry Murray & Co., for the Helensburgh and Gareloch service of the North British Railway Company. The other, the "Lady Gertrude," was built by Blackwood & Gordon, for Gillies and Campbell's Wemyss Bay service to Rothesay. She was of the ordinary flush deck type, but did not prove a striking success, and had a comparatively short career. As she was going alongside Toward Pier in 1876, the engineer was unable to reverse the engine, and the steamer slipping on the rocks to the south of the pier, became a wreck. It was an unfortunate accident for the owners, as she was uninsured. Her machinery, however, was salvaged and fitted into a new hull built by Caird & Co., which was named the "Adela."

The dearth of building in the two following years was the first long break in the continuity of river boat production since the first "Comet" was put upon the Clyde. Previously there had

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only been three single years in which no steamers were constructed—1824, 1830, and 1833.

In 1875 the "Windsor Castle" was built by Seath of Rutherglen, and engined by William King & Co., for the Loch Goil Company. She was of the ordinary flush deck type, and



'VICEROY'

had the popular machinery of the day—a single diagonal engine and haystack boiler. After a successful career on the Glasgow and Loch Goil station, she was sold to the Turks in 1900, and is now at Constantinople.

The only other production of the year was the "Viceroy," built by D. & W. Henderson & Co., for Captain Alexander Williamson, for the Glasgow, Rothesay, and Kyles of Bute trade. She was of the poop deck aft and flush fore

deck type, with single diagonal engine and haystack boiler, but she could not be considered a greyhound. In other respects, nevertheless, she proved suitable for the traffic, and ran successfully until sold with the remainder of the "Turkish fleet" to the Glasgow and South-



'ADELA'

Western Railway Company in 1891, and she is still in the service of that company.

Rutherglen produced the only two steamers of the following year, 1876. They were the "Benmore" and the "Bonnie Doon" No. 2, both built by Seath. The former was to the order of Captain Bob Campbell, and ran successfully on his Glasgow and Kilmun route for about ten years. She was then sold to Captain Buchanan, and at the present day she forms one of Captain John Williamson's fleet, doing

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duty on the service between Glasgow and the Kyles of Bute. The "Bonnie Doon" sailed for several summers in the Glasgow and Ayr excursion traffic. She afterwards became the property of Gillies and Campbell, and did a little service in connection with the railway, but was principally employed in general excursion



'SHEILA'

work. She was not considered in any way a successful boat, and was known sententiously as the "Bonnie Breakdown" till she left the Clyde for Bristol.

A flutter was produced on the river in 1877. Three of the four steamers then built were notable boats.

The least remarkable of the four was the "Adela," built by Caird & Co. The machinery

of the ill-fated "Lady Gertrude" was fitted into her, and she did useful all-year-round work on the Wemyss Bay station for many years, being finally sold to London owners.

The "Sheila" and the "Glen Rosa," also built by Caird & Co., were poop deck boats, identical in every respect. The former was owned by Captain Campbell, and employed by him in the ever-increasing trade *via* Wemyss Bay. She proved a decided acquisition to that station, and did splendid service, till she was purchased by the North British Railway Company. Her new owners re-christened her the "Guy Mannering," and she maintained her reputation in their service. Finally she was acquired by the Messrs. Buchanan. She was again re-christened by them the "Isle of Bute," and is still running in their Glasgow and Rothesay trade on the river.



CAPTAIN PETER M'DERMID

Messrs. Shearer & Ritchie, for whom the "Glen Rosa" was built, evidently thought there was room for opposition to the "Guinevere" on the Arran route *via* Rothesay and Kilchattan Bay. The new steamer commanded by Peter M'Dermid, as was to be expected, took the lead, and a large share of the traffic. But the popularity of Captain John Reid of the older boat proved a very hard nut for his rival to

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crack, and the upshot so familiar on the Clyde soon followed—the “Glen Rosa” was disposed of, and went to London in 1881. She is now sailing in the Bristol Channel.

But the chief sensation of the year was the appearance of the “Lord of the Isles.” This vessel was built for a new firm of owners, the



‘LORD OF THE ISLES’

Glasgow and Inveraray Steamboat Company, by D. & W. Henderson at Partick. She was the first formidable rival to the “Iona,” and broke up the monopoly of tourist and excursion traffic so long held by David Hutchison & Co. In every respect the “Lord of the Isles” was an ideal saloon excursion steamer. Many improvements and innovations were introduced in her equipment to add to the comfort of the passengers. The venture was from the first

an undoubted success, and in its efforts the company, under the management of M. T. Clark, was loyally supported by Captain Robert Young, already so favourably known on the Largs, Millport, and Arran route. Much of its success was also due to the exertions of the late Mr. David Sutherland, who had charge of the cuisine.

For the first few years the daily start was made from Greenock, and the course lay by Dunoon, Wemyss Bay, Rothesay, and Kyles of Bute, to Inveraray and back. In connection also with the steamer's run the company re-established the tour *via* Loch Eck and Strachur, which, as already stated, had been originated by David Napier in 1828. At a later day the steamer commenced her run at the Broomielaw, thus adding forty-five miles to the day's sail. The original vessel was sold to London owners in 1890, but "Lord of the Isles" No. 2 took up the running in the following year, and has continued it to the present day, under the command of Donald Downie.

In order to meet the formidable opposition of the "Lord of the Isles," the "Columba" was produced in 1878. At this time the business of David Hutchison & Co. was acquired by Mr. David MacBrayne, and by the intro-



M. T. CLARK

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duction of this largest and finest of the river fleet he regained for his firm that premier position on the Clyde which had been lost for one year. The "Columba" was built by Messrs. J. & G. Thomson, and embodied improvements in design and accommodation



'COLUMBA'

calculated to satisfy the most fastidious taste. Most notable of the improvements were the deck saloons, which were built the full width of the vessel and throughout two-thirds of her entire length. Internally she was well fitted up. Her upper saloon had double settees placed thwartwise on each side, with a passage along the centre, while her lower, or dining

saloon, was handsomely decorated and panelled, and had accommodation for the dining of 130 passengers. Provision was made for the expeditious working of the vessel at wharves and piers by the installation of warping sheaves fore and aft by Muir & Caldwell, an entirely new feature on board a Clyde passenger steamer. She was fitted with steam steering gear, also by Muir & Caldwell, and with Chadburn's telegraphs between bridge and engine room, which had now become recognised as an essential part of the regular outfit of steamers.

The new vessel replaced the "Iona" on the Glasgow and Ardrishaig route, and for eight years was commanded by John M'Gaw. His successor, Angus Campbell, kept control of the telegraph until his death in December, 1903, while Alexander Paterson still has charge of the ticket office.

The only other production of 1878 was the "Brodict Castle." Her owner, Captain William Buchanan, had the machinery of the "Eagle" fitted into her. The hull was of an original design—forecastle head, flush deck, long bridge, deck saloon extending half way aft with passage alongside, then the poop deck. She was evidently designed for all seasons and all weathers, but was no beauty.



CAPTAIN ANGUS CAMPBELL

She maintained the service between Ardrossan and Arran until sold to go to Bournemouth, where she now is.

Last to be launched in the seventies was the "Edinburgh Castle." She was built by R. Duncan & Co., for the Glasgow and Loch Goil traffic of the Loch Goil Com-



CAPTAIN JOHN BARR

pany. She still plies on her original route in charge of her original commander, Captain John Barr, who is now the senior skipper in harness on the Clyde passenger steamers. Captain Barr, I am informed, suggested the twenty-two feet paddle wheel with which this steamer is fitted

—a striking contrast to the wheel of to-day, which is very little more than half of this diameter.

Altogether, during the seventies, only eighteen steamers were put upon the water—twenty-five fewer than had been produced in the previous decade, and half the number built during the fifties. Thirteen of the vessels were fitted with the single diagonal engine and the haystack boiler working at fifty pounds pressure. The probable reason for the popularity of this arrangement at this period was the increasing competition of the railways. The private owner felt himself becoming rapidly a factor of the past, in respect

of the conveyance of passengers, and in consequence desired to invest a minimum of capital in each venture. He was disinclined accordingly to spend money on higher pressures, and compound engines. There also existed a prejudice against the surface condenser, as it was strongly averred that the system set up pitting in the boilers. It will doubtless seem incredible that in 1879, when the writer was negotiating for the building of the "Ivanhoe," the compound engine was condemned for river traffic by all the Clyde engineers with one exception. The exception was the firm of Rankin & Blackmore of Greenock, and often afterwards I regretted that I did not accept their recommendation. The surface condenser, however, was introduced on the vessel, and was one of the few on the Clyde at that period. Such delay in adopting innovations shows how cautious and conservative we are. Even the Swiss had compound paddle steamers on their lakes twenty years before us. It is remarkable how, even at the present day, we hesitate to "scrap" for the purpose of introducing new methods, although we may be convinced of the advantage of the course, but such hesitancy is not confined to the steamboat business by any means.

During those ten years the design of the hulls seems to have been in a state of transition. Three different types were built—flush deck, poop deck, and deck saloon.

CHAPTER IX

DECLINE OF PRIVATE OWNERSHIP

DURING the eighties there was a still further decrease in the number of steamers built. Only fourteen were put upon the water. Seven of these were for private owners, to be employed in tourist excursion traffic, and seven were in direct connection with the railway service. Twelve were fitted with deck saloons, and the two which resembled the vessels built during the seventies showed a distinctly improved type of hull. With three exceptions, however, the machinery remained of similar type to that in vogue in the previous decade. The exceptions were the "Grenadier," built in 1885, and the "Caledonia" and "Galatea" in 1889.

First of the steamers launched in 1880 was the "Ivanhoe," commonly known as "the teetotal boat." The vessel was built for the purpose of testing the practicability of running an excursion steamer successfully on strictly temperance principles. Such a possibility had often been discussed by the temperance party

and others interested in the Clyde steamboat traffic. The object aimed at was to provide an all-day sail without the liability of witnessing the disorderly scenes too frequently met with on board the river steamers, and to exclude persons unable to enjoy a holiday without



'IVANHOE'

getting drunk, creating disturbance, and causing discomfort to their fellow passengers. The syndicate which ran the vessel consisted of Alexander Allan of the Allan Line, George Smith of the City Line, Captain James Brown of the City Line, Robert Shankland of Greenock, and the writer, who acted as secretary and manager of the company, and master

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of the steamer for nine summers. To most of her owners the venture was a hobby, but to the writer it was of pecuniary importance, and involved a risk. From experience and an intimate knowledge of the feelings of the travelling public, however, he had no hesitation in embarking on the enterprise. There were not wanting persons who prophesied that the boat would prove a "teetotal failure." Some gave it three months, while the more charitable allowed it a season to exhaust its resources. But the teetotal craft kept her flag flying for seventeen years, when, after a career that was not unsuccessful, she was sold to the Caledonian Steam Packet Company.

The vessel was built and engined by D. & W. Henderson & Co., of Glasgow and Partick, to the order of the Frith of Clyde Steam Packet Company, Limited, and in point of finish and equipment was second to no other steamer. As regards order and discipline, it was universally conceded that the "Ivanhoe" closely resembled a private yacht. This description applied in an equal degree to the company which one could always rely upon meeting on board. The conduct of the passengers stood in marked contrast to that of the crowd too frequently encountered on other excursion steamers. The patrons of the "Ivanhoe," however, were by no means all of the teetotal persuasion. To the discredit of many of the temperance party, it has to be stated that they did not recognise and

encourage the enterprise they had so long been crying out for until five years after it was started, when they had reason to fear it was to be withdrawn. The attitude, in fact, of the temperance party towards the "Ivanhoe" afforded a notable example of that sort of preaching which does not develop into practice.



DINING SALOON

The extremists, at any rate, did not encourage the steamer as they might have done. It was the moderate class of the community who responded to the effort to maintain one first-class excursion steamer, characterised by peace and comfort, and but for the support of these the venture would soon have come to grief. On the other hand, some of the members of the temperance party, I reluctantly regret to state, were the

most difficult of the vessel's passengers to please. In the steward's department, they expected to get a first-class article at a second-class price. Many instances of this peculiarity might be cited, but I refrain. The experience of the vessel showed clearly how hollow principles can prove themselves when their sincerity comes to the test of £ s. d. It was frequently remarked that, contrasted with the usual vapourings on the subject of temperance, the running of the "Ivanhoe" was the most practical and effective temperance sermon ever preached.

The programme of the vessel's route was as unique as her principles. She did not sail from Glasgow like the other excursion steamers, but from Helensburgh, and thence by Greenock, Gourock, Kirn, Dunoon, Wemyss Bay—where most of the passengers from Glasgow joined—and Rothesay, through the Kyles of Bute, to Corrie, Brodick, Lamlash, King's Cross, and Whiting Bay. The inhabitants of the Arran watering-places were indebted to the "Ivanhoe" for a much improved service, particularly to Whiting Bay. At first, the latter place had a connection once a week; two years later a daily service was given, which was the means of greatly popularising the south end of the island. On the return passage the outward journey was retraced as far as Corrie, then the course deviated by the south end of Bute to Rothesay, and thence to Wemyss Bay, Dunoon, Kirn, and the other outgoing places of call.

In order to make hay while the moon shone, and improve both the time and the finances, the company inaugurated evening and moonlight cruises. The idea was generally supposed to be original, but was not really so, as I find in the records of the twenties that on very special occasions at that period an



GENERAL SALOON

occasional "evening pleasure trip was indulged in." The only originality lay in the name, and possibly even that had been used before. These cruises were varied each evening. They became very popular, and continued so during the entire career of the steamer, their success being due to the absence of rowdiness on board. At any rate, though many other steamers started evening cruises in emulation,

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none of them met with success, and one after another was forced to retire. Of these efforts the boldest and most determined was made by the management of the "Lord of the Isles." They flattered the "Ivanhoe" by issuing a complete copy of her programme. This was met, on the part of the "Ivanhoe," with the announcement that the entire proceeds of the week's evening cruises would be handed over to the infirmaries of Greenock and Helensburgh. The result was that while the "Ivanhoe" found herself unable to take all her passengers who offered, the "Lord of the Isles" ran practically empty. The contest ceased in three nights' time, and was not repeated by the "Lord of the Isles" or any other steamer.

The loyal support of the public was recognized, and this took the form of an "Annual Benefit Evening Cruise," the proceeds of which were devoted to the deserving institutions already named. This cruise was always well supported, and resulted in the annual remittance of a good round sum to each of the infirmary treasurers.

Variety, again, had to be maintained. To this end Pain, the London pyrotechnist, was engaged to give a firework display on the shores of the Gareloch. The enterprise cost £100, which was considered a fabulous sum to spend for such a purpose. In order to make ends meet, it was necessary to employ assistance and bring crowds from all the

watering-places of the firth. Ten steamers were chartered for the purpose, and ten thousand people were conveyed to the scene—the greatest number ever assembled in the Gareloch. The display was acknowledged to be splendid, and the enterprise proved a financial success. In addition to the sightseers afloat there were several thousands on shore, who of course paid nothing, and these people had the advantage of another display, the procession of the eleven steamers in brilliantly lighted array, down the loch, a sight never to be forgotten.

The enterprise was repeated, but on the co-operative principle, as the other boat-owners desired a larger share of the profit. Their experience, however, proved less satisfactory than on the previous occasion. Accordingly, later displays and musical entertainments on "the Braes of Coulpport" and elsewhere were left to the speculation of the writer. The idea was afterwards adopted by the authorities at Dunoon and Rothesay as a means of attracting the public, and advertising these towns. The contour of the Bay of Rothesay in particular was by nature suited for an illumination and firework display. These accordingly became an annual event, the cost of which was defrayed by local contribution. In addition, each steamer which took advantage of the attraction and brought passengers to see it contributed a sum of not less than five pounds to the funds of the Committee in charge of the display. With this

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inducement as many as twenty-five steamers would sometimes visit Rothesay Bay on these occasions, carrying as many thousands of sight-seers on board.

Upon the opening, in 1883, of the North British Railway coast terminus at Craigendoran, which was controlled by Robert Darling, the steamboat manager, the "Ivanhoe" arranged to make a connection there, thus extending its



ROBERT DARLING

accommodation to passengers by all three railways, the North British, Glasgow and South-Western, and Caledonian. Unpleasantness, however, arose in the relationship between the "Ivanhoe" owners and the two former companies, and led to the withdrawal of the connections with them, and to a closer alliance

with the Caledonian at Wemyss Bay, and latterly at Gourock when the line to the latter place was opened for traffic on 1st June, 1889. This alliance was maintained until the "Ivanhoe" was sold to the Caledonian Steam Packet Company in 1896. The boat was then given up to general excursion traffic, and was succeeded on the Arran "Royal Route" by the "Duchess of Rothesay."

The occasion of dignifying the "Ivanhoe" route with the title of "Royal" was the unexpected interesting visit of the late King of

Saxony to the Clyde in 1886. On that occasion His Majesty spent a day on board the vessel as an ordinary passenger. As might have been expected, he proved much easier to entertain than his equerry, who, indeed, had to be reminded before he was long on board that the "Ivanhoe" was not a specially chartered yacht. In the course of a pleasant chat upon the bridge, the King remarked that the sun had passed the meridian, and laughingly suggested that, of course, it was quite out of the question to expect that even a bottle of Rhine wine should be found on board a temperance steamer. A bet was ventured on the subject, and lo! a sample was produced *from the medicine chest*, which was evidently enjoyed all the more for its being unexpected. His Majesty's forfeit took the form, not indeed of a Cross of the Legion of Honour of Saxony, but of the royal monogram set in brilliants.

It may not be amiss to mention that floral decoration was first introduced on board this steamer. The dining-saloon in particular was treated in an unique fashion. Vines planted in pots were ranged along the sheets on each side, and the branches were trained across the ceiling. In that position their reality was frequently doubted, but they actually produced clusters of grapes, and on very special occasions one of these was cut. One day a bunch was severed in honour of a lady passenger who made herself unusually companionable, and displayed extraordinary interest in the vessel

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and the scenery of the day's route. It was not till several weeks later that the identity of the fair unknown was discovered by the appearance of an article in *The Queen* entitled "A day on the Ivanhoe." The interested and interesting passenger was the late editress of that journal.



'SCOTIA'

Besides the "Ivanhoe," only two steamers were launched in 1880. The "Scotia," built by H. M'Intyre & Co., of Paisley, and engineered by William King & Co., of Glasgow, to the order of Captain William Buchanan, was fitted with a double steeple engine and two haystack boilers. This last detail is of note, for the engine was the last of the once popular steeple design to be built on the Clyde. The

first was made by Murdoch Aitken & Co., in 1836 for the "St. Mungo," and from that date steeple engines continued at work on Clyde steamers till the close of the century. The last in use on the Clyde was that on board the "Vivid." Several may yet be seen working, however, on the Caledonian Canal and other West Highland steamers, where they are likely to survive for some time longer.

So far as the design of the hull was concerned, the "Scotia," commanded by Alexander Gillies, one of the very few remaining men of the fifties, was somewhat similar to the "Brodick Castle," and was no beauty. Nor was she successful in any way. The first few years of her career were devoted to the Glasgow and Rothesay traffic. An extension to Arran *via* Kilchattan Bay was afterwards introduced, in succession to the service of the "Guinevere." And, finally, she superseded the "Brodick Castle" on the Ardrossan and Arran route, doing both summer and winter duty, and proving a more useful boat than her predecessor. During the winter of 1881, when Captain Campbell withdrew his steamers for three months in consequence of a dispute with the Wemyss Bay Railway Company, the "Scotia" relieved the stranded islanders of Cumbræ



CAPTAIN ALEX. GILLIES

morning and evening with a run between Millport and Fairlie. This was done in addition to her Ardrossan and Arran service, but the venture proved less fortunate, for one evening, touching near Fairlie Patch, she rapidly settled down, and remained on the bottom for several days. Happily, no lives were lost. She was afterwards purchased by the Glasgow and South-Western Railway Company, and retained by them on the Ardrossan service until relieved by the "Glen Sannox." She was then sold to Bristol owners, and is now sailing on the Bristol Channel.

The remaining steamers of the year, "Chancellor" No. 3, and last of the name, was built to the order of the Loch Long & Loch Lomond Steamboat Company for the Glasgow and Arrochar service in connection with the Loch Lomond and Trossachs tours. She was of the deck saloon type, fore and aft, and proved a successful boat on the station for several years. She passed into the hands of the North British Company when they purchased the Loch Lomond steamers. A few years later she was sold to the Loch Goil and Loch Long Company. Still later she was transferred to the Glasgow and South-Western Railway Company, and finally they disposed of her to Lisbon owners, who are now running her on the River Tagus.

The shadow of coming events induced another halt in steamboat building for two years, and in 1883 the only vessel recorded was

the "Meg Merrilies" No. 2, built to the order of the North British Steam Packet Company for their Craigendoran traffic to Rothesay. Messrs. Barclay, Curle & Co., who built and engined her, were unfortunate in this production. The "Meg Merrilies" was luckless during her entire career, and involved her successive owners in



'MEG MERRILIES'

large periodical expenditure. After the first season the North British Company returned her to the builders as unsuitable. The latter gave her a new after body underneath, which improved matters slightly. She was then chartered to run in Belfast Lough for two seasons, an experience which did not improve her constitution. Next she was acquired by Captain Bob Campbell for the Kilmun service.

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Here a "sleep-in" one morning on the part of the "black squad" led to the burning of one of her boilers, with the result that an explosion was narrowly averted. Much sympathy was felt in the circumstances for Captain Bob, who had just passed through a period of misfortune. The boat, however, was re-boilered and again "done up," and three years later passed into the hands of the Caledonian Steam Packet Company. Finally, in 1902, she was sold by them to the Leopoldina Railway Company, and is now sailing across the Bay of Rio de Janeiro.



CAPTAIN HUGH MACPHERSON

But for the ill-luck of the "Meg Merrilies," no steamer would have been launched in 1884. To take her place Barclay, Curle & Co. built the "Jeanie Deans" for the North British Steam Packet Company. The new vessel was a marked improvement on the "Meg," and turned out a success. She was of the quarter deck design, with a single diagonal engine and haystack boiler, and of scantlings throughout, to make sure of there being "no mistake this time."

This produced a grasshopper movement which could only be tolerated on short journeys. The runs on which she was employed, however, were of this description, and her excess of speed over most of the other

boats neutralised her defect to a great extent. Altogether, during her North British ownership, the "Jeanie," as she was commonly called, had a successful career. But on her transfer to Irish owners at Londonderry she became "down in the heels," and on her return



'JEANIE DEANS'

to the Clyde as the "Duchess of York," and her employment in the Sunday traffic, she completely lost her reputation. She is now laid up at Bowling, and does not seem to be anybody's child.

In 1885 four steamers were added to the Clyde list. Only two, however, were for regular Clyde service. Of these the "Waverley"

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was built by H. M'Intyre to the order of Captain Bob Campbell for the Glasgow and Kilmun trade. She was found to be too big for the Loch traffic, and in consequence was frequently employed for excursion traffic. Ultimately she was chartered to go to Bristol. This proved a fortunate event for the Campbells of Kilmun. It led them to transfer their steamboat experience to a district which required the introduction of Clyde methods. The brothers saw their opportunity, and on the disposal of the "Meg" and the "Madge" to the Caledonian Company, they took farewell of the Clyde steamboat traffic in 1889, and settled down in Bristol.

The "Diana Vernon" was a small saloon steamer built by Barclay, Curle & Co., for the Gareloch service from Craigendoran. She was a very smart little craft, and well suited for a limited traffic, but was very "tender" with a few hundred passengers on board. Rumour had it that she was not originally designed for deck saloons, hence perhaps the defect in her stability. After continuous employment for a number of years in the service for which she was built she was sold, a few years ago, to South of England owners.

The two other steamers were the "Grenadier" and the "Fusilier," built to the order of David MacBrayne, for service in the West Highlands during summer, and between Greenock and Ardrishaig during winter.

The builders of the former were J. & G.

Thomson, of Clydebank, and the boat was remarkable for the fact that she was the first Clyde passenger steamer to be fitted with a compound surface-condensing oscillating engine.

The circumstance reveals a very strange



'GRENADIER'

state of affairs. It might be said to be the reverse of complimentary to Clyde steamboat owners. From the early years of the century these owners enjoyed the reputation of possessing the finest and most up-to-date fleet in the world, yet they continued down to 1885 to employ engines which were by no means the latest or most economical. The reasons were

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probably to be found in the cheapness of coal, and the imminence of railway extensions



CAPTAIN ARCH. M'ARTHUR

and competition. The ship-builders, who possessed the necessary capital, and might have ventured to pioneer, had retired from the hobby of steamboat ownership, and in face of the steady decline of the up-river traffic it may be understood why the individual owner hesitated to venture upon improve-

ments which involved the employment of considerable additional capital.

The "Grenadier" was originally fitted with Scotch boilers, but recently these have been replaced by boilers of the haystack variety.

Curiously, these latter seem to have become favourites with Mr. MacBrayne when other owners (North British excepted) are discarding them. A few years ago he had not one haystack boiler in his fleet, while the other owners had that type alone. Although this steamer has never possessed a reputation for speed, she has in other



CAPTAIN DONALD M'CALLUM

respects proved most successful, economical, and up-to-date. She is still doing good service.

DECLINE OF PRIVATE OWNERSHIP 199

The "Fusilier," on the other hand, built by M'Arthur, though of modern design so far as the hull is concerned, was fitted with the still popular single diagonal engine and haystack boiler, possibly with the view of reducing the initial cost. She also is still on the MacBrayne list.



'VICTORIA'

The building of steamers to the order of private owners was now fast coming to a close. 1886 was the last year in which two were built, and only four others followed singly at intervals. The first of the four, the "Victoria," could scarcely be considered as for private ownership. She was built and engined for the Campbell fleet of Wemyss Bay steamers by Blackwood & Gordon, Port-Glasgow, and was intended for an improved edition of the "Ivanhoe." She

was the first steamer fitted with an electric installation for Clyde traffic. The installation did not, however, work well, and the vessel as a whole was not considered a successful craft.

For some time Captain Campbell had shown an inclination to treat the traffic between Wemyss Bay and Rothesay, and Wemyss Bay, Largs, and Millport, as a monopoly, to give the train connections an indifferent service, and to



MALCOLM M'NAUGHTON

employ upon it only his older class of steamers, while he reserved his newest and best vessels for general excursion purposes. At the earnest request of the railway company he was induced to place the "Victoria" upon the railway service. But the excursion business was evidently too good to be

allowed to fall into the hands of others, and the vessel was not long on the station until the owner was at his old game. Action of this kind could end only in disaster, and in 1890 this arrived. As already mentioned, the difference between Campbell and the railway company now came to open rupture. After this the "Victoria" was sold to London owners, and she sailed as an excursion boat on the Thames for a few years with varied fortunes. She was brought back to the Clyde, but, as has happened invariably with old Clyde

vessels which have returned to the scene of their youth, she fell into disrepute. She engaged in Sunday sailing, and was seriously damaged by fire at the Broomielaw. She went again to London, and was lately reported to be at Bermuda. From start to finish, it may be said, the "Victoria" was unfortunate—



'MADGE WILDFIRE'

builders, owners, and others associated with her, all suffered alike.

The other steamer launched in 1886 was the "Madge Wildfire." She was built by S. M'Knight & Co., Ayr, for Captain Bob Campbell's Glasgow and Kilmun trade, and proved a much more sensible production for the station than her predecessor, the "Waverley." A handy, economical little boat, fast

enough for all practical purposes, she sailed under the Campbell flag for three years. Along with the "Meg Merrilies" and all their belongings she was sold as a going concern to the Caledonian Steam Packet Company, and the transaction ended the connection of the Campbells with the Holy Loch as steamboat owners. The "Madge" still forms one of the Caledonian fleet, and does good service on the Millport and Wemyss Bay station, particularly during the winter months.



CAPTAIN ARCH. CAMERON

The year 1887 was a barren year, and in 1888 only one steamer was built. This was the "Lucy Ashton," constructed for the North British Company, by Seath, of Rutherglen. Of the deck saloon type, fitted with the still popular single diagonal engine and haystack boiler, she was well suited for the coast traffic from Craighendran, in which she is still employed, although at no time has she been a prominent boat.

But the final blow to small private ownership on the Clyde was given in the last two years of the decade. For some time the extension of the Caledonian Railway to Gourock had been in progress, and on 1st June, 1889, the line and pier were opened for traffic. During the previous summer the directors had invited proposals from all the steamboat proprietors for

the proper development of the passenger trade to all parts of the coast. But previous experience of railway alliances, together with an attachment to the Glasgow and South-Western Company which had lasted for twenty years, made the proprietors, with one exception,



'LUCY ASHTON'

hesitate to commit themselves to the new route. The upshot was the formation of the Caledonian Steam Packet Company on the lines proposed by "the exception," and the appointment of the writer as its Secretary and Manager.

As already stated, the steamers "Meg Merrilies" and "Madge Wildfire" were purchased by the company, and, in addition,

two other steamers, the "Caledonia" and the "Galatea" were put in construction.

The former vessel was built by John Reid & Co.,¹ Port-Glasgow, and was engined by Rankin & Blackmore, Greenock. Hull and machinery were both of a distinctly new type. The principal dimensions of the boat were 200 ft. \times 22 ft. \times 7 ft. 6 in., and she had a continuous and unbroken promenade deck 170 ft. long, and the full width of the vessel, giving comfortable accommodation in the saloons underneath for the full complement of passengers she was certified as her quota by the Board of Trade to carry. The engine-room was not boxed in, as had previously been



CAPT. RODERICK M'DONALD

the custom, but had open rails and stanchions fitted all round, affording a clear view of the machinery, which is always interesting to passengers. In other respects the fittings and furnishings were arranged to suit the local passenger traffic for which the steamer was intended. For the convenient working of the vessel, in addition to the now familiar telegraph between the bridge and the engine-room, a device of docking telegraphs was introduced. These enabled the captain to work his steamer

¹ It is of interest to note that Mr. Reid is a grand nephew of John Wood, builder of the "Comet."

alongside piers on a silent system, instead of in the old exasperating manner of shouted orders, which were apt to be mixed with adjectives, sometimes amusing, but often offensive to the ears of the average passenger. The crews were soon educated into the habit of



'CALEDONIA'

looking at the dial for orders from the bridge instead of relying on the vocal method of the "good old days." One Celt on the bridge, however, proved so antagonistic to "these new-fangled notions" that, as a reproof, he was transferred for the better part of a year to the old "Meg," where such "notions" were not part of the equipment. This effectually removed his prejudice.

Further particulars of the machinery, and comparisons with former types will be found in the chapter devoted to engineering. It is sufficient to mention that the "Caledonia" was the first Clyde passenger steamer fitted with the navy type of boilers working under forced draught, and with the compound tandem surface-condensing diagonal single crank engine.

On account of the innovations in boilers and machinery, local opinion was decidedly against



CAPTAIN SMITH

the boat at first. But, notwithstanding the new conditions and a certain amount of ill-usage, unavoidable during the initial stage, the boilers served for fifteen years, working ten and a half months per annum, at the original pressure. Otherwise, in point of size and the economical working of the traffic for which she

was designed, the vessel proved a decided success, and as a matter of fact most of the steamers built during the following ten years were merely improved editions of the "Caledonia."

The "Galatea," commanded by Archibald M'Pherson, was a very smart-looking saloon steamer, with a clear promenade deck two hundred feet long and the full width of the vessel, her general arrangements and equipment being equal to the requirements of the

most fastidious. She was built and engined by Caird & Co., Greenock, the machinery being of the compound diagonal type with two cranks, and navy boilers with forced draught, and she attained a fair success in point of speed.

The "Caledonia," "Galatea," and "Meg



' GALATEA '

Merrilies" were placed on the Rothesay service, and the "Madge Wildfire" was run to Kilcreggan and Kilmun, all in direct connection with express trains at Gourock. The service opened successfully. Its immediate result was to divert the greater portion of the traffic from the Princes Pier route. This it accomplished as completely as the Princes Pier route, twenty

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years earlier, had diverted the traffic from the older Caledonian route *via* the Custom House Quay at Greenock.

The Gourrock route also proved a formidable rival to that by Wemyss Bay, and its opening led to the unpleasantness already referred to between the Wemyss Bay Steamboat Company and the Caledonian Railway Company, as



CAPTAIN ARCH. M'PHERSON

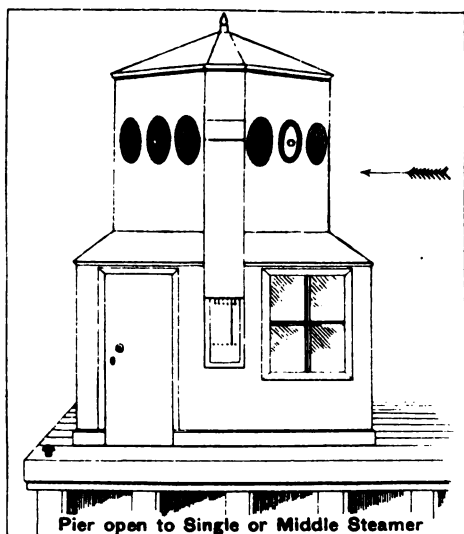


CAPTAIN JOHN BUIE

owner of a portion of the railway from Glasgow to Wemyss Bay.

In the last year of this decade an innovation was introduced which was equivalent to a revolution in the navigation of the passenger steamers on the firth. On 29th March, 1889, the present system of controlling the approach of steamers by means of signals on each pier came into operation. Particulars of the system were embodied in the Clyde Navigation Act of 1887. Down to that year no means existed for regulating the arrival of vessels approaching

the piers at the same time. Each skipper did his best for himself, and sometimes, when three or four boats approached a pier together, the unrestricted scrimmage for the berth threatened to bring about serious disasters. To put an end to this state of affairs competitive devices



PIER SIGNALS

were invited, and their designs were submitted to the Clyde Pilot Board, as the local authority. The device selected was that of Mr. Charles Allan, third son of the late Alexander Allan of the Allan Line. The system of signalling thus introduced has answered its purpose admirably, and has put an end most effectually to the risks which were formerly run by rival skippers

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in anxiety to get their boats first to the piers. The innovation was also most opportune. During the decade which followed, the competition for the coast traffic was the most acute, uncompromising, and wasteful that had yet been known.

DESCRIPTION OF THE SIGNALLING APPARATUS.

The Signalling Apparatus, as shown on the diagram, consists of a triangular box raised above the level of the pier to such height as is necessary. One corner of the box faces the water, and the two adjoining sides are set at the most suitable angle for each particular pier, so as to face the line of approach of steamers to each side of the pier. The sides of the box are painted white, and each exposed side contains three circular openings in a horizontal row, the edges of the openings being painted black. Behind each of these openings, a sliding board is arranged to show through the openings, black when let down and white when pulled up. The black parts have small red glass centres, and the white parts have white glass centres.

The intention is that the row of three discs facing approaching steamers should be the signals to three steamers approaching in these relative positions, namely, the inshore signal for the inshore steamer, the middle signal for the middle steamer, and the outside signal for the outside steamer. When the pier is blocked

against the approach of any steamer, all the discs show black; but when it is intended to open the pier to any steamer—by day—the disc corresponding to her position is changed to show white. This is done by pulling the cord attached to the special disc, which locks all the other discs, so that no other signal can be shown while the first is exhibited.

At night a light shows through the red glass centres of the black discs, and through the white glass centre of any disc which may be pulled up, and the discs so lighted are used at night in the same way as the unlighted discs are used during the day.

CHAPTER X

FIGHT OF THE PACKET COMPANIES

WE have now arrived at the nineties, a period in which the three railway companies, the Caledonian, the North British, and the Glasgow and South-Western, with their allies, owned the finest fleet of passenger steamers in Europe. The advantages and inducements now offered for the conveyance of passengers from all parts of the country to the popular watering-places on the Clyde, by the elegant and commodious steamers provided by the railway companies contrasted strongly with the arrangements of fifty years previous. Still stronger was the contrast with the facilities in existence at the beginning of the century. Then a single mail coach and one lumbering long coach ran daily with a few passengers between Glasgow and Greenock. Travellers to Dunoon and the Cowal District had to find their way to the Cloch, and cross the firth in an open ferry boat, while those for Rothesay embarked in small sailing packets whose arrival at their destination depended entirely on the state of the

weather. On the other side of the river, Helensburgh was reached by a caravan which left Glasgow early in the morning and halted at Bowling for dinner. Gourock and Helensburgh were in those early days the "salt water quarters" of Glasgow citizens. At the end of the century, on the other hand, what with express trains every hour, and the constantly plying fleets of swift saloon steamers, Dunoon was within three quarters of an hour's run, Rothesay was brought within eighty minutes, and the shores of Arran were within the return excursion of an afternoon from Glasgow. It can readily be understood that these modern facilities increased the volume of traffic to the coast beyond the dreams of nautical prophets.

Early in 1890 there appeared ominous signs of discontent on the part of the Wemyss Bay Steamboat Company. To be prepared for any emergency the Caledonian Company ordered two steamers, the "Marchioness of Breadalbane," and the "Marchioness of Bute," to be built by John Reid & Co., and engined by Rankin & Blackmore. The two vessels were identical, and were in every way similar to the "Caledonia," except that the power was slightly increased, and that the bridge, instead of being erected between the paddle-boxes amidships, was placed in front of the funnel. This position of the bridge has since become a prominent feature on all the Caledonian boats, its advantage being to give the captain and

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steersman an uninterrupted view forward, and thus reduce the chances of accidents.

These boats were completed in April, and not a day too soon. The Wemyss Bay Steamboat Company, thinking to interrupt the traffic, and coerce the Railway Company, gave one



'MARCHIONESS OF BREADALBANE'

week's notice, instead of six months', and withdrew their service of steamers. But no interruption occurred. The Caledonian Company placed its new steamers on the station and the traffic went on as before. The only result was that the old Wemyss Bay Company's vessels were first laid up and then disposed of, as already related.

FIGHT OF THE PACKET COMPANIES 215

The Caledonian Steam Packet Company was now in possession of the traffic both *via* Gourock and *via* Wemyss Bay. A few weeks later, on 1st June, 1890, it established a steam-boat service between Ardrossan and Arran in connection with the new Lanarkshire and Ayrshire Railway, which completed the Company's connection with all parts of the coast, and practically "scooped the pool."



CAPTAIN DUNCAN MUNRO



CAPTAIN DUNCAN MACDOUGALL

The "fat was now in the fire." The Ardrossan and Arran station was the oldest and most cherished preserve of the Glasgow and South-Western Company, and they found themselves completely out-flanked by the appearance of the new boat. This steamer, the "Duchess of Hamilton," built and engined by Denny Brothers, was, and still is, beyond doubt the finest and most successful craft in the Clyde passenger traffic. Her principal dimensions are $250 \times 30 \times 10$ ft., and her general

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arrangements are of the most commodious character. The promenade deck extends the entire length and width of the vessel, being the first of this kind to be built. On the main deck are the general saloon aft, and the second-class saloon and smoking-room forward. Under the main deck are the respective first and second



'DUCHESS OF HAMILTON'

class dining saloons, and sleeping accommodation for the crew. As a testimony to the perfection of the arrangements on board it may be stated that the Committee of the Clyde Yachting Clubs will have no other steamer to act as Club boat during the Clyde yachting fortnight. The engagement is complimentary, but the absence of the steamer from her Ardrossan and Arran station during the busy

season is not without its disadvantages to the owners.

The machinery of the "Duchess" is of the double diagonal compound type, with three navy boilers working under forced draught, the whole giving excellent results. It may be of



GENERAL SALOON

interest to note that on board this steamer was fitted the first of Parson's turbine engines for generating the electricity required to illuminate the saloons and other parts of the vessel.

To the Caledonian Company the population of Arran and the summer visitors to the island are indebted for the magnificent steamers and ample service which they now enjoy on this route. Not only has the time been reduced by

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half an hour between Glasgow and Brodick, but a direct connection between Ardrossan and Whiting Bay is now given twice daily and three times on Saturday, which is of great advantage to the south and popular end of the island. As a result of the improved service,



DINING SALOON

the traffic to Arran was more than doubled in ten years after the "Duchess of Hamilton" was placed on the station.

Twelve years after the appearance of the Caledonian Company upon the scene, the traffic from the south end of Arran had developed so much that the inhabitants of Whiting Bay and its district petitioned the two railway companies for a fair division of the service.

FIGHT OF THE PACKET COMPANIES 219

They suggested that, instead of the two companies' steamers running on the heels of each other, one company should take the old track, or Brodick route, from and to Ardrasan, while the other should sail direct to and from Whiting Bay. In this way Whiting Bay pier and Brodick pier would each form the terminus of one of the companies. The proposal appeared not only fair and sensible,



CAPTAIN ROBT. MORRISON



E. R. M'MILLAN

but one which would most assuredly develop the traffic and benefit all concerned. The question, however, arose, who was to leave the old track? This the Glasgow and South-Western Company declined to do, giving as a reason the fact that it carried the mails. The refusal was reasonable enough, but the South-Western also declined to bind itself to adhere to the old track if the Caledonian Company yielded to the prayer of the petitioners and took the other route. The predi-

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cament looked awkward for the south-enders, but after a little correspondence and conference between the petitioners and Caledonian Company, the latter agreed to institute its "new and improved service," and on 1st May, 1901, the "Duchess of Hamilton" began her sailings between Ardrossan and Whiting Bay direct. Within a month the expected competition began. The new arrangement was a



JOHN HOUSTON



ROBERT HOUSTON

pronounced success, and the Glasgow and South-Western Company introduced a second steamer to run direct from Whiting Bay. To the credit of the community, it has to be said, the south-enders supported the company that introduced the improved service, and, as the second direct steamer from Whiting Bay to Ardrossan was about as necessary as a third wheel is to a cart, it was withdrawn. The new Caledonian arrangement reduced the journey from Glasgow to Whiting Bay by three quarters

of an hour, and as a result the district flourished, and has become more popular and populous than before.

The old "Duchess" still maintains her position as the finest and most successful steamer engaged in the Clyde passenger traffic. It is admitted that there are some steamers to-day



'MARCHIONESS OF LORNE'

a trifle faster, but as an all-round passenger boat she takes first rank. She has been commanded from the first by Robert Morrison, who was at first ably assisted by Eben M'Millan, purser, and latterly by John Houston, a very prominent figure on the Caledonian steamers.

In 1891 four steamers were added to the fleet upon the Firth—one for the Caledonian

Company, two for the North British, and one to replace the old "Lord of the Isles."

The "Marchioness of Lorne," for the Caledonian Company, was built by Russell & Co., Port-Glasgow, and engined by Rankin & Blackmore. She was a small repetition of the "Duchess of Hamilton," except as regards machinery. This was of the triple tandem type, with two cranks, two high-pressure cylin-



CAPTAIN W. GORDON

ders, one intermediate and one low pressure, with the usual navy boilers and forced draught. The boat was built principally for the spring, autumn, and winter traffic between Ardrossan and Arran, and for general summer traffic between Gourock and Rothesay, or Wemyss Bay and Rothesay or Millport. In these ser-

vices she is still employed under command of William Gordon.

The two steamers for the North British Steam Packet Company were the "Lady Rowena," built by M'Knight of Ayr, and the "Lady Clare," by M'Arthur of Paisley. The machinery of both, by Hutson & Corbett, was of the type adhered to by the North British Company, single diagonal engines with haystack boilers, working at 50 lbs. pressure. Both were saloon steamers employed in connection with the railway at Craigendoran.



'LADY ROWENA'



CAPTAIN D. M'ARTHUR



CAPTAIN ANGUS CARMICHAEL

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The "Lady Rowena" succeeded the "Chancellor" in the Dunoon, Holy Loch, Loch Long and Arrochar traffic, and remained on the route until sold to Italian owners.

The "Lady Clare" was a smaller boat, and is still employed on her original route, in the Gareloch.



'DUCHESS OF HAMILTON' AS CLUB STEAMER

"Lord of the Isles" No. 2 was by the same builders as No. 1, D. & W. Henderson & Co. She was of similar design to her predecessor, but was somewhat larger, and had her deck saloons built the full width of the vessel. She still maintains her owners' original Kyles of Bute and Loch Fyne sailings to Inveraray, with the connecting coach tour between Strachur and Loch Eck. Neither in point of speed,

FIGHT OF THE PACKET COMPANIES 225

however, nor otherwise, has she been considered so successful as "Lord of the Isles" No. 1, and she is now suffering from the severe competition and the many other attractions offered in all directions by the railway companies and the new turbine steamers. She



'LORD OF THE ISLES' NO. 11

has been commanded throughout by Captain Downie, who also sailed the first "Lord." He succeeded Captain Alexander M'Kinnon, whose predecessor was Captain Robert Young. Peter M'Farlane, the engineer of the vessel, is the senior engineer on the Clyde. He was engineer on board the "Alliance" on the Arrochar service in 1857.

A great battle for supremacy was now imminent, the keenest and most serious, because of the interests involved, that has ever been fought between passenger steamer owners on the Clyde. The Caledonian Company's invasion of 1889 and 1890, as we have seen, had swept away a large part of the rival company's trade, both from Princes Pier and Ardrossan. To regain its position the Glasgow and South-



CAPTAIN DONALD DOWNIE

Western Company, after much deliberation, decided upon the construction of a large and powerful fleet. By some of the public the enterprise was regarded as a very courageous one, but by others who had experience in steamboat affairs, it was looked on with doubt. At the best it could only be regarded as a bold but hazardous enterprise. One result of the struggle, which is still going on, is that the public receives a maximum of comfort and good service for a minimum of payment. Another result is that the number of privately owned steamers on the Clyde has been reduced to limits below those of the earliest days of the industry. And a third result has been a wonderful acceleration of speed by boat and rail, the record of forty-five minutes between Glasgow and Dunoon having been reached by the Gourock route.

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In 1890 the Glasgow and South-Western Company had purchased the "Viceroy," "Sultana," "Sultan," and "Marquis of Bute," together with their trade, from Captain Alexander Williamson, whose son, Alexander, was appointed Marine Superintendent. In addition, in 1892, the company ordered the building of



'GLEN SANNOX'

three new steamers. All three, as was to be expected, were required to go "one better" than the Caledonian boats, so lively times were in view.

J. & G. Thomson of Clydebank received the order for the "Glen Sannox." She was unquestionably a fine steamer, being somewhat similar to the "Duchess of Hamilton" in design, finish, and equipment, but ten feet longer. Only, in her engine-room, about double the

power and double the fuel had to be expended in order to get a knot more than the speed of her rival on the Ardrossan and Arran route, whom she was to oppose in succession to the "Scotia," which the Glasgow and South-Western Company had purchased from Captain William Buchanan. As a result of the employment of two of the finest and fastest steamers on the Clyde on this route the traffic to Arran



CAPTAIN COLIN M'GREGOR



CAPTAIN FOWLER

has greatly increased, but the restrictions as to feuing which unfortunately prevail on the island put an effectual bar to the capacity of the two steamers being fully utilised. Nevertheless they still run. The "Glen Sannox" was commanded, till his death three years ago, by Colin M'Gregor, a native of Shiskine in Arran, whose ability in handling his steamer was very marked.

The other two vessels, the "Mercury" and "Neptune," were built by Napier, Shanks &

Bell, and engined by David Rowan & Co., and they proved very successful. In fitting the machinery on board these boats a record was made which Rowan & Co. will probably not repeat. Between the launch and the trial trip only six days elapsed, and within that time the



' MERCURY '

feat was accomplished. There is a time limit, even to throwing machinery on board a Clyde steamer, and probably six days is that limit. The two vessels were employed in the trade between Princes Pier, Greenock, Dunoon, Rothesay, and the Kyles of Bute, and are still on that route. The "Neptune" was also used during the summer months for general excursion traffic.

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In the following year the Glasgow and South-Western Company added two other steamers to their fleet, the "Glen Rosa" and the "Minerva." Both boats were built and engined by J. & G. Thomson. They were a little smaller than the previous steamers, though the expenditure in the engine department was on the same liberal scale. In build, they were of a distinctly new type, which has not been



CAPTAIN PETER M'GREGOR



CAPTAIN CHARLES BROWN

repeated. They were provided with a short poop and a short forecastle-head on the level of the main rail. The main and promenade decks were respectively about three feet below and above these ends. The result of the novel arrangement forward was that, in bad weather, a flat surface was presented to the pressure of wind and sea, and the upper deck acquired something of the appearance of a breakwater. During summer these two boats were employed in general traffic to Holy Loch

FIGHT OF THE PACKET COMPANIES 231

and Loch Long, and to Dunoon, Rothesay, and the Kyles of Bute, and during winter one of them replaced the "Glen Sannox" between Ardrossan and Arran, in the same way as the Caledonian Company's "Marchioness of Lorne" replaced the "Duchess of Hamilton."



'MINERVA'

Throughout all seasons of the year, but especially between June and September, the rivalry between the boats of the two companies was maintained at white heat. In 1893 indeed the display of recklessness on the part of captains had the effect of checking to some extent the popularity of the coast as a summer resort, and it is doubtful if the lost ground was recovered during the decade.

Between 1891 and 1895 the Caledonian

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Company kept a steady course with their modern and moderate fleet, and continued to develop and increase their traffic in face of the large and powerful fleet of their opponents. Time was economised as far as possible by method and expedition at Gourock, and though several steamers would be despatched within two minutes of the arrival of a train, the feat was accomplished without fuss of any kind.



CAPTAIN JOHN CAMERON



CAPTAIN A. TURNER

In 1895 the Caledonian Company put the "Duchess of Rothesay" on the water. The boat was built and engined by the Clydebank Shipbuilding Company (successors to J. & G. Thomson), under the directorship of Mr. John G. Dunlop. An up-to-date vessel in every respect, she proved a valuable acquisition to her owners, and was associated principally with the traffic between Gourock, Wemyss Bay, and Arran, *via* the Kyles of Bute, in succession to the "Ivanhoe." For many

FIGHT OF THE PACKET COMPANIES 233

years she was "cock of the walk" on the firth, being certainly the smartest looking craft turned out by the Clydebank firm, and she is still doing excellent work. She was commanded for seven years by Donald M'Phedron, who was succeeded by Allan MacDougall, formerly



' DUCHESS OF ROTHESAY '

of the "Ivanhoe," while the ticket office has been in charge of Robert Houston, a favourite purser on board the Caledonian steamers.

Upon the appearance of this vessel, the Glasgow and South-Western and the Caledonian Companies concluded an armistice of five years. The arrangement was not, in all respects, advantageous to the latter company,

whose geographical advantages would doubtless have ultimately overcome their rivals, but it was wise to put a stop, by friendly means, to a reckless competition, which might have ended in disastrous results.

Up to 1895 the North British Company had been working quietly, developing its own side of the river and improving its system generally. It had, so to speak, been sitting on the wall,



CAPTAIN ALLAN MACDOUGALL



CAPTAIN DONALD M'PHEDRON

watching the developments across the water, at Princes Pier and Gourock. In that year, however, it woke up, and ordered two new steamers, the "Redgauntlet," from Barclay, Curle & Co., and the "Dandie Dinmont" No. 2, from A. & J. Inglis. Both were smart, up-to-date steamers so far as the hulls were concerned, but the company adhered to the type of machinery and boilers in common use twenty-five years before.

The former steamer gave a very good



'RED GAUNTLET'



'DANDIE DINMONT'

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account of herself in the race for Rothesay, and was recognized as one of the greyhounds of that time. An accident which caused considerable sensation happened to her in the summer of 1899. While on an excursion round Arran she ran on the Iron Rocks on the west side of the island, receiving damage which compelled her to be beached immediately. None of the passengers suffered, except



CAPTAIN D. M'FARLANE



CAPTAIN D. M'NEILL

from the annoyance incidental to serious delay, and the court of enquiry let the captain off.

The "Dandie Dinmont" did duty principally on the Dunoon and Holy Loch route, and as new districts on the North British Railway system were brought into touch with the Clyde in a manner never before attempted, she developed a good traffic. The "Dandie" has been commanded from her earliest by Duncan M'Neill, one of the most respected and careful

skippers of the day. Both steamers are still plying in the North British service.

The fourth vessel built in 1895 was the "Glenmore," by Russell & Co., for Captain John Williamson's Rothesay and Kyles of Bute traffic. She was modern in every respect,



'GLENMORE'

except that of speed. Her owner did not intend her for express service in connection with the railways, but as a steady money-making machine. She was sold in 1896 to Captain Wiggins, whose name figures frequently in Muscovite politics, and she is now trading in the heart of Russia.

In 1896 two notable steamers were launched.

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The first of these was the "Jupiter," built for the Glasgow and South-Western Railway



'JUPITER'

Company by the Clydebank Shipbuilding Co. She was smaller than the "Glen Sannox," but in



CAPTAIN DONALD M^CTAVISH

most other respects was of the same design and finish. Clydebank, indeed, has become famous for the building of this class of steamer, the majority of the type produced during the decade having been put upon the water by this firm. In appearance and finish they have been second to none, and all of them may be

considered successful boats. The "Jupiter" was from the first identified with the Princes Pier,



'TALISMAN'

Kyles of Bute, and Arran round trip, in opposition to the Caledonian Company's "Duchess of Rothesay," but the combined business of the two has never been equal to that of the "Ivanhoe" in its early days on the same route.

The other steamer of the year, the "Talisman," was built by A. & J. Inglis for the North British Company. In design and finish she was similar to the others of the North British fleet, which



CAPTAIN J. M. GRAY

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are all smart boats, and of a type suitable for their short distance traffic. She has done good service for her company, which in these years found itself in the heart of the severe competition for the coast trade with the other two companies.

The only steamer launched in 1897 was the



‘STRATHMORE’

“Strathmore.” Her builders were Russell & Co., Port-Glasgow, who turn out the greatest tonnage on the Clyde, chiefly of the cargo class. She was intended to replace the “Glenmore,” and to act as a consort to the “Benmore” for Captain John Williamson’s passenger and cargo work, and was of modern design both in hull and machinery, the latter, as in the case of the “Glenmore,” being supplied by Rankin &

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Blackmore. She still plies on the Kyles of Bute service in connection with the Caledonian



'JUNO'

and Glasgow and South-Western Railways, and is notable as the last steamer built on the Clyde in the nineteenth century for a private owner.

In 1898 another pair of "greyhounds" were built, one for the Glasgow and South - Western Railway Company and the other for the North British.

The "Juno," built by the Clydebank Company for



CAPTAIN M'PHEDRON

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the excursion traffic of the Glasgow and South-Western Railway was of up-to-date design.



'KENILWORTH'

She was, however, rather of the size of a channel steamer than of the regular Firth of Clyde craft. Of somewhat similar accommodation to the "Glen Sannox," she is of a much heavier build, and is employed principally for traffic out of Ayr during the summer months.



CAPTAIN JOHN CLARK

The "Kenilworth," constructed by A. & J. Inglis for the North British traffic, may be described as an improved edition of this Com-

pany's previous steamer, the "Talisman." She is also employed on the Craigendoran and Rothesay route, and has all along given a good account of herself.

The next steamer, the "Waverley," was the only boat turned out in 1899. Built, like the



'WAVERLEY'

"Kenilworth," by A. & J. Inglis to the order of the North British Company, she was in many respects a distinct advance on previous North British craft. She was fitted with the first compound engine employed by this conservative company. They still, however, adhered to the haystack boiler, though it was of modern type and with the present-day pressure of 110 lbs.

The boat has proved most successful in every respect, and a distinct acquisition to the North British fleet. While generally employed in the ordinary coast traffic from Craigendoran, she is frequently in request for excursions, and altogether keeps well in line with the steamers of the two rival companies. She is frequently to be seen trying conclusions as to speed with her rivals on the firth.



CAPTAIN MALCOLM GILLIES

The result of these competitions, however, it is to be feared, must be attributed altogether to favouring circumstances on board one or other of the racers.

With reference to the departure made in the machinery of this steamer, it is interesting to note an occurrence of the previous year, 1898. An arbitration case was then submitted to Sheriff Cheyne by the Caledonian and North British Companies, as joint owners, regarding the type of steamer to be built for the Loch Lomond traffic. On that occasion the North British Company's representative and others gave evidence recommending strongly the adoption of the low pressure engine with the haystack boiler. They also recommended that the two steamers about to be built should be of a size to enable them to be floated up the Leven, under the bridges, to Loch Lomond. The Caledonian recommendation was for

steamers of larger dimensions to be fitted together on the loch side, with triple diagonal machinery and water-tube boilers, or with compound diagonal engines with navy boilers. This recommendation was supported by the eminent firm of Messrs. Denny, of Dumbarton, and others. The old-fashioned method, however, carried the day—a decision which can hardly be considered complimentary to the modern science of mechanics, and which found its answer in the experience of the steamers themselves.

After advocating so retrograde a policy with regard to these Loch Lomond steamers, the North British management showed considerable pluck in ordering the "Waverley" to be fitted with compound engines. At the same time, it must be said that this class of machinery had become general on the Clyde ten years before. It is matter of congratulation, nevertheless, that the Company at last saw their way to make the change, as the "Waverley" was the last paddle-steamer built in the nineteenth century. She was also the last provided with reciprocating engines.

CHAPTER XI

THE TURBINE STEAMERS

IT is an interesting coincidence that on the first Clyde passenger steamer to be built in the new century there should be introduced an entirely new method of propulsion by steam. The placing of the "King Edward" on the water has played a notable part in the introduction of a type of machinery which is likely to revolutionise the engineering world in the twentieth century hardly less than James Watt's invention of the separate condenser did in the nineteenth. The inventor of the marine steam turbine was the Hon. C. A. Parsons, M.A., F.R.S., and the first vessel on which the new machinery was put to the test was the "Turbinia," built in 1894, for the Pioneer Syndicate, the chief members of which were the Earl of Rosse, Messrs. C. J. Leyland, George Clayton, Norman C. Cookson, H. C. Harvey, John B. Simpson, A. A. C. Swinton, G. G. Stoney, and the inventor. The success of the "Turbinia" led to the introduction of the turbine system on two torpedo boat destroyers,

FIG. 1. S. Y. TURBINA

CURVE A SPEED IN RELATION TO WATER CONSUMED PER HOUR WITH 9 PROPELLERS (3 ON EACH SHAFT)
 B $\frac{DP}{HP}$ $\frac{DP}{HP}$ $\frac{DP}{HP}$ $\frac{DP}{HP}$ $\frac{DP}{HP}$ $\frac{DP}{HP}$ $\frac{DP}{HP}$ $\frac{DP}{HP}$ $\frac{DP}{HP}$ (ONE $\frac{DP}{HP}$ $\frac{DP}{HP}$ $\frac{DP}{HP}$)
 C PERCENTAGE DIFFERENCE IN PROPELLIVE HORSE-POWER IN RELATION TO WATER CONSUMED PER HOUR
 WITH THE ADDITION OF SINGLE PROPELLERS INSTEAD OF THREE PROPELLERS ON EACH SHAFT,
 SHOWING A MAXIMUM INCREASE IN PROPELLIVE HORSE-POWER OF 23 PER CENT FOR THE
 SAME WATER CONSUMPTION.

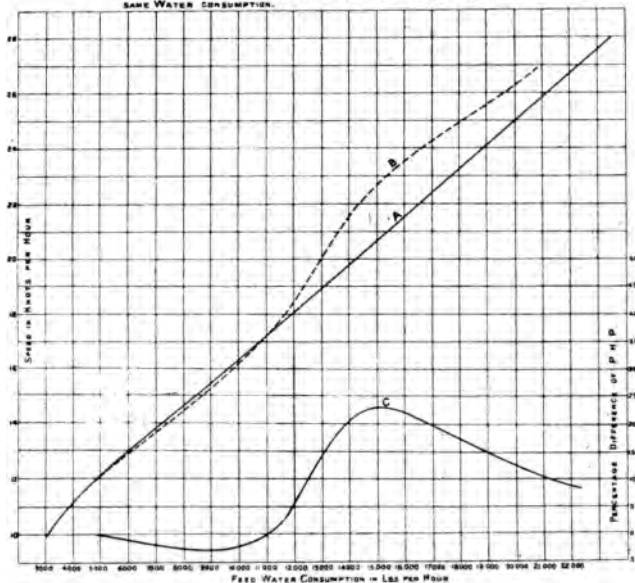
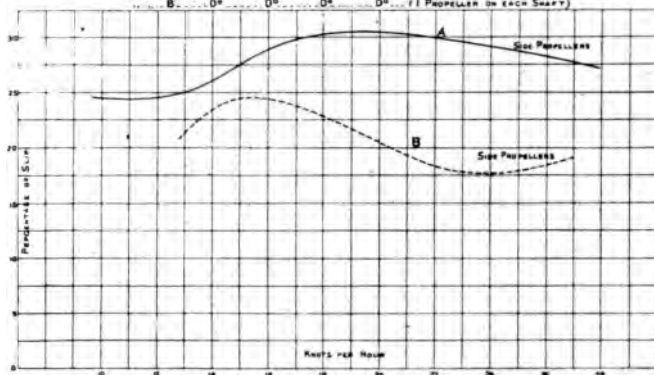
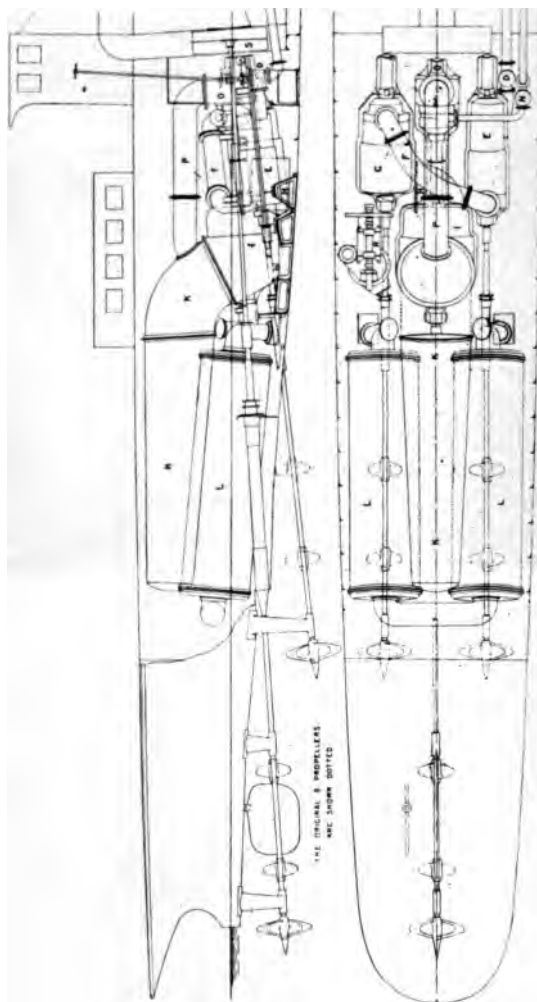


FIG. 2. S. Y. TURBINA

CURVE A SLIP OF PROPELLERS IN RELATION TO SPEED (3 PROPELLERS ON EACH SHAFT)
 B $\frac{DP}{HP}$ $\frac{DP}{HP}$ $\frac{DP}{HP}$ $\frac{DP}{HP}$ $\frac{DP}{HP}$ $\frac{DP}{HP}$ $\frac{DP}{HP}$ $\frac{DP}{HP}$ $\frac{DP}{HP}$ (ONE $\frac{DP}{HP}$ $\frac{DP}{HP}$ $\frac{DP}{HP}$)





TURBINE

the "Viper" for the British Government, and the "Cobra" for Sir W. G. Armstrong, Whitworth & Co. The fourth vessel to be fitted with turbine machinery was put upon the waters of the Clyde.

The "King Edward" was built in the spring of 1901 by William Denny & Bros., Dum-



'KING EDWARD'

barton, and engined by the Parsons Marine Steam Turbine Co., Limited, of Wallsend-on-Tyne. The order was given by Captain John Williamson, as managing director of a syndicate formed for the purpose of testing the suitability of the steam turbine for commercial purposes on board a passenger steamer. A more practical and severe test could not have been made, or one more calculated, in the event of

success, to convince the world of the superiority of the turbine over the reciprocating engine for fast steamers.

In a paper read at the summer meeting of the Institution of Naval Architects on 26th June, 1903, the Hon. C. A. Parsons described the vessel as follows :—"She is 250 ft. by 30 ft. by 10 ft. 6 in., with 6 ft. draught of water. Her engines are similar in construction to those of



H. HALL, CHIEF ENGINEER

the 'Turbinia,' and consist of three turbines—one of high pressure, driving the centre shaft, and two of low pressure, working in parallel, and driving the side shafts. In the exhaust casing of each of the low pressure turbines is placed a reversing turbine. The centre shaft drives a propeller of 57 inch diameter, and each of the side shafts carries two of 40 inch diameter and about nine feet apart. When the vessel is manœuvring, steam is admitted by valves directly into the low pressure, or into the reversing turbine, for going ahead or astern respectively, on either side of the vessel, the centre turbine and propeller meanwhile remaining idle. When the main stop valve is opened to the high pressure turbine all the turbines go ahead. The auxiliary machinery is of the usual type, and needs no special mention except that the air pumps are worked by

worm wheels from the low pressure turbine shafts. The boiler is of the usual return-double-tube, ended type, working at 150 lbs. pressure."

The trial of the "King Edward" was made on the Clyde on 26th June, 1901, and on the Skelmorlie mile a mean speed of 20.48 knots was recorded, the revolutions of the centre shaft being 505 and of the side shafts 755 per minute. From model experiments in the tank at Dumbarton the indicated horse power was estimated to be 3,500. On the run of about 160 miles to Campbeltown and back during the 1901 season the average sea speed was 19 knots, and the average coal consumption, covering lighting-up, &c., was 18 tons per day, or 1.8 lbs. per equivalent indicated horse power per hour. Altogether the results of speed and coal consumption have been stated by the Messrs. Denny to be more favourable than could have been obtained from a similar vessel with triple-expansion reciprocating engines. In detail the statement by Mr. James Denny declares that if the "King Edward" had been fitted with balanced twin triple-expansion engines of the most improved type, and of such size as to consume all the steam the existing boiler could make, the best speed that could possibly be expected would be 19.7 knots, against the $20\frac{1}{2}$ knots actually attained by the "King Edward." The difference between 19.7 knots and 20.5 knots corresponds

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to a difference in indicated horse power, in favour of the turbine steamer, of 20 per cent.

The performance of the vessel during the seasons of 1901 and 1902 has been most satisfactory, no hitch or trouble having occurred with the machinery. After they had covered a distance of 27,000 knots the writer examined the turbines, and found everything in excellent order and condition, and he does not hesitate to declare that the turbine engine has come to remain until, at any rate, something better turns up. Much has been said to the contrary; the coal consumption in particular having been declared excessive. As a matter of fact the coal consumption compares very favourably with that of the ordinary compound engine. To reduce the comparison to definite figures the performance of the "King Edward" may be compared with that of the "Duchess of Hamilton." The hulls of the two steamers are identical in size, but the "King Edward," at the rate of 8.87 knots per ton of coal, travels at an average speed of 18 knots per hour, while the "Duchess of Hamilton," at the rate of 8.47 knots per ton of coal, travels at an average speed of only 16 knots per hour.

The names of Messrs. Parsons, Denny, and John Williamson will long be honourably associated with the conclusive proof of the superiority of the turbine system of propulsion for steamers as demonstrated by the production and performance of the "King Edward."

With regard to the more ordinary details of the vessel, in design and general arrangement the hull is somewhat similar to the hulls of the most recent paddle steamers, providing all the comforts and conveniences demanded by the most exacting patron of the Clyde passenger steamer.

Such is the most recent development of the Clyde passenger steamer. What the next step will be it is by no means easy to predict. An idea of the probable demands of the traffic may be inferred from the fact that during the last ten years of the nineteenth century the number of passengers carried amounted to upwards of four millions per annum, nearly three times the number carried in 1890. Such rapid progress need not surprise anyone who is familiar with the style, equipment, and comfort, to say nothing of the efficiency and discipline, to be found on board the Clyde steamers. By their means, access to all parts of the firth is as rapid as it is pleasurable, and the moderate charges and continually increasing population of Glasgow and the valley of the Clyde point to a greater increase in the future than has even occurred in the past.

The improvements made in recent years in the comforts and discipline of the steamers have reacted upon the manners of the public who



HON. C. A. PARSONS

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support them. During the Glasgow Fair holiday season, when the steamers are crowded, the Clyde tripper stands in marked contrast, in appearance and behaviour, to what he was even so recently as the eighties, and it is pleasant to observe that the improvement becomes more apparent from year to year.

During the last decade of the century twenty-four steamers were built, bringing the fleet



JOHN WILLIAMSON



WALTER BROCK OF DENNY & CO.

engaged in the passenger traffic up to the number of forty. When consideration is given to the number of runs per day effected by each of the railway boats—by Craigendoran, Greenock, Gourock, Wemyss Bay, Fairlie,¹ and Ardrossan—some idea of the service may be formed.

Altogether, in the years from 1850 to 1901, 141 steamers were built on the Clyde, of which

¹ The Fairlie route was opened for traffic on 1st July, 1882, but it was not until the introduction of the turbine steamer "King Edward" that any considerable volume of traffic travelled by that route.

four were lost, ten were broken up, and seventy-nine were sold to leave the firth. Two boilers exploded during the period, and twelve persons were injured, drowned, or killed. Of these, however, only two fatal accidents are traced as having occurred to passengers, the balance of the casualties having occurred to those engaged on and about the steamers. In view of the millions of passengers who have been carried during these fifty years the record reflects the highest credit on those in command of the steamers and the crews. For the previous forty years the records were not so favourable, three boilers having exploded, and one hundred and fifteen casualties having happened to passengers and crews.

The totals for the whole of the nineteenth century are—309 steamers built; 11 steamers lost in Clyde waters; 258 steamers broken up or sold out of the Clyde, leaving a balance of 40 steamers on the list in 1901, as follows:

	Number of Passengers Under No. 5 Limits.	Number of Crew.	Master.
Caledonian Steamers.			
"Duchess of Hamilton," -	1780	42	Robt. Morrison
"Duchess of Rothesay," -	1376	36	D. M'Phedron
"Marchioness of Lorne," -	1213	24	Wm. Gordon
"Marchioness of Bute," -	1119	19	Duncan MacDougall
"Marchioness of Breadalbane," } -	1119	19	Duncan Munro
"Ivanhoe," - - -	1198	32	Allan MacDougall
"Galatea," - - -	1307	30	John Buie
"Meg Merrilies," - -	1004	20	Hugh M'Pherson
"Madge Wildfire," - -	983	16	Archd. Cameron
"Caledonia," - - -	1093	19	D. A. Smith

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	Number of Passengers Under No. 5 Limits.	Number of Crew.	Master.
G. & S.-W. Steamers.			
"Glen Sannox," - - -	1701	47	Alex. Fowler
"Juno," - - -	1497	43	Donald M'Phedron
"Jupiter," - - -	1406	38	Donald M'Tavish
"Glen Rosa," - - -	1035	26	John Cameron
"Minerva," - - -	1035	26	Archd. Turner
"Neptune," - - -	1267	33	Charles Brown
"Mercury," - - -	1267	32	Peter M'Gregor
"Viceroy," - - -	1140	19	John Sinclair
"Marquis of Bute," - -	781	14	Hugh M'Callum
North British Steamers.			
"Waverley," - - -	1467	33	Malcolm Gillies
"Talisman," - - -	1244	18	John M'Caul Gray
"Redgauntlet," - - -	1114	27	Dugald M'Farlane
"Lucy Ashton," - - -	903	16	Roderick M'Donald
"Lady Rowena," - - -	938	23	Donald M'Arthur
"Lady Clare," - - -	709	16	Angus Carmichael
"Kenilworth," - - -	1230	18	John Clark
"Dandie Dinmont," - -	961	17	Duncan M'Neill
MacBrayne's Steamers.			
"Columbia," - - -	2116	74	Angus Campbell
"Chevalier," - - -	1074	24	John M'Millan
"Grenadier," - - -	1150	20	Arch. M'Arthur
"Fusilier," - - -	1078	18	Donald M'Callum
"Iona," - - -	1400	30	Neil M'Tavish
Loch Gail and Inveraray Steamers.			
"Edinburgh Castle," -	1028	20	{ Wm. Barr or
"Lord of the Isles," -	1600	44	{ Archd. Muir
			Donald Downie
Buchanan's Steamers.			
"Isle of Arran," - - -	1333	22	Wm. Buchanan
"Isle of Bute," - - -	1017	20	Jas. D. Buchanan
"Vivid," - - -	890	12	Lachlan Campbell



CAPTAIN M'INNES
CAL. CO.



CAPTAIN JOHN THOMPSON
CAL. CO.



CAPTAIN JOHN SINCLAIR
G. AND S.-W. CO.



CAPTAIN M'CALLUM
G. AND S.-W. CO.

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	Number of Passengers Under No. 5 Limit.	Number of Crew.	Master.
Jno. Williamson's Steamers			
"Strathmore," - - -	1113	24	John Gillies
"Benmore," - - -	934	16	James Stewart
Turbine Syndicate.			
"King Edward," - - -	1994	50	{ Alex. Fowler ¹ H. Hall, Engineer

¹ Captain Fowler was the first master of the "King Edward" for about half the season, when he returned to his own steamer, the "Glen Sannox," and was succeeded by Angus Keith.

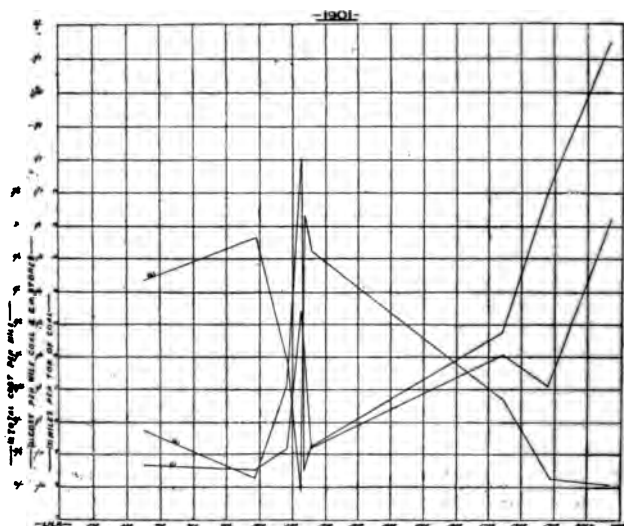


DIAGRAM OF COSTS OF THE WORKING OF PADDLE STEAMERS



CAPTAIN JOHN M'MILLAN
MACBRAYNE'S STEAMERS



CAPTAIN NEIL M'TAVISH
MACBRAYNE'S STEAMERS



CAPTAIN LACHLAN CAMPBELL, BUCHANAN'S STEAMERS



CAPTAIN J. D. BUCHANAN



CAPTAIN WM. BUCHANAN

CHAPTER XII.

OWNERS, MASTERS AND CREWS

THE precision and promptitude of steamboat management at the present day is in strange contrast to the steamboat methods of ninety years ago. To mention one feature only, the registration of steamers in the earlier period was erratic in the extreme. In the case of the "Comet," the records of the Custom House at Glasgow give J. Bruce as the name of the master, while in all other records William M'Kenzie figures as the captain. The anomaly is probably explained by the supposition that J. Bruce was the man who took charge of the vessel until she was delivered to her owners, or was master when she was registered. In the case of other steamers, periods of from one to five years elapse before they are registered at the Custom House, and there are instances of vessels whose record exists only in the builders' lists. In one list, indeed, received from a well-known firm of builders, there was no record at all of two steamers which were unquestionably built by

them. It was only upon the production of evidence from an outside source that the fact was verified and the omission acknowledged by them. Again, in the original list, compiled by one of John Wood's assistants, of the steamers built by his firm between 1812 and 1820, the particulars by no means accord with those of the register kept by the Custom House. In this case, the Custom House record must be considered the more reliable, and it has been taken in preparing the complete list of steamers appended.

Much of this want of method is to be accounted for by the fact that in its earlier days the steamboat enterprise exercised over all connected with it a fascination which is difficult to explain, and which is seldom found in connection with other undertakings. It was owing, perhaps, to this fascination that the pioneers of the enterprise obtained so little substantial return from it. They looked upon the steamers and their achievements rather from the point of view of the enthusiast than of the cool-headed business man bent on securing a return for his energies. It was on this account, probably, that Henry Bell found himself in constant financial straits, and closed his days in circumstances less opulent than he deserved. His colleague, John Robertson, who made the engines of the "Comet," had a similar experience, some details of which have already been alluded to in the brief account of his life.

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These men, however, paved the way, and it might be supposed that those who came after them, benefiting by their ideas, and relieved of the expense and mistakes common to the inauguration of a new enterprise, would have reaped a golden harvest. This, however, was by no means always the case. The sentimental side of steamboat owning and steamboat running seems to have increased rather than diminished during the successive decades, exhausting itself only with the periodic depletion of the resources of the enthusiasts. From first to last the jealous and uncompromising attitude of the owners towards each other incurred a waste of energy and means which made financial success impossible. Attempts were made from time to time to form a Steamboat Trust, but they invariably ended in failure. There must have been squandered in unnecessary and costly competition a sum of over two millions sterling in round figures, and it is little to the credit of those engaged in the enterprise that the waste was never greater than at the close of the century. No attempt to run the steamers on business-like methods seems to have been made till the river was all but cleared of craft during the American Civil War in the early sixties. At that period the traffic was conducted by a reasonable number of economical steamers under the direct control of their owners, and, undoubtedly, for close on twenty years, money was rapidly made, but immediately after that time the traffic,

and the steamboat ownership, were gradually absorbed by the railway companies.

A similar looseness to that observable in registering the steamers is to be found in the records of the earlier owners. Between the years 1812 and 1827 it has only been possible to find a record of the names of owners of two steamers—Henry Bell is registered as the owner of "Comet," No. 1, and G. Burns & T. Buchanan appear as owners of the "Argyle" in 1815. It may, therefore, perhaps, be assumed that the ownership of the early steamers was divided, and that in addition to the builder and the maker of the engines, who were often sharers in the venture, it included persons belonging to the localities to which the vessels plied.

The name of David Napier appears as owner of the "Venus" in 1827, of the "Cupid" in 1828, of the "St. Mun" in 1830, the "Earl Grey" in 1832, and the "Kilmun" in 1834. Napier played so conspicuous a part in the development of the Clyde steamboat and the coast that his career possesses peculiar interest. His father, John Napier, was a founder and smith at Dumbarton, a man of some position, having in his workshop two steam engines, one for blowing a cupola, and another of the original kind, with open cylinder and wooden walking-beam, which he used for boring cannon. At that time nearly all the cannons made in this country were cast at Carron or the Clyde Ironworks, and a proportion of those cast at the latter place were sent to Dumbarton

to be bored. It was here that, on 29th October, 1790, David Napier was born. Twelve years later John Napier removed his business to Glasgow, and acquired premises in Howard Street. David was sent to school, and received instruction in French, mathematics, and drawing, having for instructor Peter Nicholson, an authority on architecture. By and by he assisted his father, not serving a regular apprenticeship to any trade, but, to use his own words, "putting his hand to everything." By the time he was twenty years of age he was able to take complete charge of the business, and in 1813 his father died.

As a boy, Napier had been taken to see the "Charlotte Dundas," Symington's steamer on the Forth and Clyde Canal. She was a small tug, with a paddle at the stern, and a waggon-shaped boiler with a brick flue. Though only twelve years of age, Napier was impressed by this boat, and began to reflect on the possibility of further steam developments.

Henry Bell, as a house builder, was frequently in Napier's foundry getting castings; hence, when he resolved to venture upon building a steamer, he gave Napier the order for the boiler and castings required. It is recorded that the making of the boiler presented considerable difficulty, engineers being unaccustomed to manufacture internal flues. Cast iron was first tried and proved unsuitable, but malleable iron was afterwards adopted, and in the end a comparatively tight job was made.

Seeing that steam navigation was likely to succeed, Napier began to erect works at Cam-lachie for the purpose of making marine engines, and in this enterprise he soon distinguished himself. There was a difficulty at first about the engines for deep-sea boats. Two steamers built at Greenock to the order of an Irish company, and engined by James Cook, the oldest and most capable engine-maker then in Glasgow, had not proved successful on the station, and it was thought impossible to construct machinery capable of withstanding the shock of a heavy sea. Napier, nevertheless, had ideas of his own on the subject. There is a story told of him, that, as the captain of one of the Belfast sailing packets was making a winter passage, he observed a young man perched, quite regardless of the waves, on the bow of the vessel, gazing intently on the seas as they broke over the ship. At intervals, he came to ask the master whether the sea might be considered rough, and on each occasion being told that it was by no means unusually stormy, he returned to his post. The breeze, however, freshened, at last it blew a whole gale, and the captain admitted that he could not remember having faced a worse night. Delighted with the information, Napier retired below, saying, "I think I can manage, if that be all."

From the perusal of a French treatise on the resistance of fluids, he came to the conclusion that the full, round bow in use for sailing ships was unsuitable for steamers. Accordingly, he

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made a model of length, breadth, and depth proportionate to the dimensions of the steamer he contemplated, and experimented with this in the Camlachie burn in 1817. He began fining away the bow, and continued to do so as long as the fining produced any perceptible increase of speed, taking care to keep the weight constant. Having reached the point of maximum advantage, he handed the model to the shipbuilder, and instructed him to take his lines from it. The result was the "Rob Roy," a vessel eighty feet in length by sixteen feet beam, with which in 1818 he established steam communication between Greenock and Belfast. The vessel plied between these ports regularly for two winters, and was then transferred to the English Channel as a packet between Dover and Calais.

Having thus ascertained the proper model for steam vessels on the open sea, Napier proceeded to turn his knowledge to further account. A year later, the Messrs. Wood built for him two larger boats, the "Talbot" and the "Ivanhoe," into which he put two engines, each of thirty horse-power. These plied between Holyhead and Dublin, performing the journey in about eight hours, and were considered the most perfect vessels of the day.

These were the first vessels to establish the practicability of navigating the open sea by steam, and the fact is recorded in two Blue Books of the House of Commons, which appointed a Select Committee, under the presi-

dency of Sir Henry Parnell, to examine into the subject.

Napier had now established a reputation as a marine engineer, and in 1821, to extend his business, he purchased lands at Lancefield, at the same time leasing his Camlachie premises to his cousin, Robert Napier. In his works at Camlachie he was assisted by David Tod and John Macgregor, who subsequently founded the well-known firm which bore their names.

Napier engined the "United Kingdom" in 1826. First of the so-called "leviathans," she was 160 ft. long by $26\frac{1}{2}$ ft. beam, with engines of 200 horse power. People flocked from all quarters to see her as the wonder of the day, and it was predicted by the general public that she would prove unwieldy at sea.

Among the inventions which Napier introduced or designed were the surface condenser, steeple engines with one, two, or four piston rods, and boilers with vertical tubes, besides feathering paddles, twin screws, a rotary engine, a steam carriage, a floating battery, a breech-loading gun, etc. He appears to have introduced the steeple engine about 1834, though he did not patent it till 1842. The story of how the idea occurred to him, and of how he worked it out at midnight on the floor of the dining-room at Lancefield, has already been told in these pages.

At the same time this versatile genius was by no means without the misfortunes of an inventor. Possessed of an independent mind,

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he was not disposed to yield readily when accidents occurred on his steamers, and was prone to resist claims which arose out of them. For this reason he appeared more than once as a defender in the law courts. There is no evidence, however, that the accidents were caused by any inferiority in his work.

The worst of his misfortunes has been already alluded to. On 24th July, 1835, as his steamer, the "Earl Grey," was at Greenock Quay preparing to race against the renowned "Clarence," her boiler exploded, killing ten persons and injuring many others. The engineer in charge was tried at the Circuit Court, but was found "not guilty." The boiler, a new one, had been put in a few weeks previously by George Mansell. It carried a pressure of no more than eight pounds to the square inch, but the safety-valve was controlled by a rod passing down to the engine-room below deck.

For a considerable time Napier had purposed going to London, and about this period he leased Lancefield House and works to his cousin, and removed to Millwall, where his sons, with his assistance, began shipbuilding and engineering on the banks of the Thames. Three iron steamers, the "Eclipse," the "Isle of Thanet," and the "Rocket," built by them for the Margate traffic, made a considerable stir at the time. The "Eclipse," in particular, which had two funnels, was called

"Spring-heeled Jack," and is immortalised in the *Ingoldsby Legends* :

"If in one of the trips
Of the steamboat 'Eclipse'
You should go down to Margate
To look at the ships."

She was a very fast boat, and outsailed all others on the Thames.

The firm continued in business for fourteen years, then leased their works to Scott Russell as an extension of his yard for the building of the "Great Eastern."

At the time of the Crimean War Napier designed a ship which, in his opinion, would prove invulnerable and yet destroy anything afloat. The vessel was to have no sides above the water-line. To give the necessary buoyancy she was to have a curved deck two feet thick, covered outside with one-inch iron plates, and provided with half-inch plates inside the wooden backing to prevent splinters. He proposed to arm her with one or more disappearing guns, made of malleable iron, loading at the breech ; and, as he had had experience with guns in early life, he offered to get such a gun made, capable of firing two shots for one with any gun in the Navy. When on land, the gun was to be mounted behind an armoured shield on a steam carriage large enough to contain half-a-dozen men, and capable of moving backwards and forwards at pleasure. This invention he offered to the Admiralty on the "no success, no pay" principle, yet, strange to

say, the authorities declined the proposal. At that time the Admiralty were themselves experimenting with floating batteries of wood protected with armour plates, three being built, the "Erebus" by Robert Napier, the "Terror" by Palmer, and a third by someone else.

Another of the projects of Napier's later years was a scheme for the purification of the Clyde. He suggested to the authorities a plan for the removal of the sewage of Glasgow to the open sea by steam barges, and expressed his willingness to subscribe £500 to test the plan. The offer, however, was not taken advantage of.

In an earlier chapter a description has been given of the inventor's early enterprise in opening up the Kilmun and Lock Eck route to the West Highlands. The steam carriage which he put upon the road on that occasion was the first that carried passengers for hire. Its non-success was due partly to the softness and hilliness of the road, and partly to the fact that from want of knowledge in boiler-making the expected speed could not be attained.

While resident in Glasgow, Napier bought the estate of Glenshellish, between Lock Eck and Strachur, and spent his summer holidays there, till, on removing to London, he leased it to tenants. On his final retirement from business he resided for a time at Worcester. It has been said that probably, with the exception of his cousin, Robert, no single man did more to improve the steam navigation of the

world than David Napier, who died in London in November, 1869, in his eightieth year.

Next on the list of steamboat owners on the Clyde are the names of Henderson and M'Kellar. The two were first associated with the Helensburgh and Gareloch traffic, and M'Kellar by himself was afterwards connected with the Kilmun route, their enterprises extending altogether over a period of thirty years. They started with the first "Sultan" in 1828. Henderson was a shipbuilder at Renfrew, and M'Kellar belonged to a Glasgow family connected with the shipping industry during the greater part of the century.

William M'Kenzie, already mentioned as master of "Comet" No. 1, his first command, appears as owner for the first time in 1830, in connection with the "Superb," of which he was also master. Captain J. M'Kinnon comes next, as



CAPTAIN JOHN M'KINNON

master and owner of the "Rothesay," in 1831, and in the same year appears J. Neilson, owner and builder of the "Fairy Queen," but he does not seem to have continued his connection with the traffic.

Duncan M'Kellar, of the Largs and Millport and Arran steamers, was first registered as owner in 1832 in connection with the "Hero," and his association with the traffic, coupled

latterly with that of his sons, Alexander and John, continued until the opening of the Wemyss Bay Railway. In the same year, 1832, Thomas Wingate, the shipbuilder and engineer, appears as owner of the "Apollo." His only other record as owner occurs in 1858 in connection with the "Hero," but, of course, he built many other steamers.

In 1834 Messrs. Currie & Clark were registered as owners of the "Nimrod," Currie also



CAPTAIN DUNCAN M'KELLAR



CAPTAIN ALEX. M'KELLAR

acting as master. In this year W. Young first appears in the list, as owner of the "Rob Roy." A Glasgow plumber to trade, he was associated with the traffic until the ownership of the steamers "Lady Brisbane" and "Lady Kelburne" was amalgamated with that of M'Kellar's Largs line. His connection with the enterprise was continued, however, through his son, Captain Robert Young.

J. & W. Napier entered the list in 1837 as

owners of the "Luna," and continued their relations with the traffic directly or indirectly for several years. They were succeeded by Napier & M'Intyre, who built and owned the "Vulcan" in 1854 and the "Neptune" in 1861.

The name of another well-known firm of engineers and shipbuilders, Tod & M'Gregor, appears in the list of owners for the first time in 1838 in connection with the "Queen." They continued their connection with the traffic until the building of the "Spunkie" and "Kelpie" in 1857, and were also interested in M'Kellar's Largs and Millport boats.

Besides these, numerous names of part-owners of individual steamers will be found in the detailed list of steamers and owners in the appendix.

The owning of steamers by the railway companies dated from the opening of the Glasgow and Greenock Railway in 1841, but till 1889 the interest of these companies remained, for reasons now forgotten, only half-hearted and spasmodic. The last decade of the century, however, found the Caledonian, North British, and Glasgow and South-Western Companies owning twenty-seven steamers, while the private owner had become all but extinct.

It was not until 1842 that the Glasgow merchant princes began to take part in the enterprise. The history and ultimate result of their endeavour are of considerable interest. On the building of the "Duntroon Castle"

the names of W. Campbell of Tillichewan, J. Hunter of Hafton, and A. S. Finlay of Toward were entered as representative owners. The association was known as the Castle Company, from the names of the various steamers which it put upon the water, but it only lasted till 1845. The steamers were then sold to G. & J. Burns. This firm immediately made a determined effort to get control of the traffic on the



D. HUTCHISON



ALEX. HUTCHISON

Clyde. To this end they reduced the fares all round to the lowest limit on record, conveying passengers to any point of call for twopence. The attempt, however, produced no result to justify the trouble taken and annoyance caused, and in 1848 the steamers were turned over to David Hutchison & Co. Hutchison was a clerk in the office of the Messrs. Burns, and was closely associated by family ties with the firm.

Twenty-nine years later, the undertaking was acquired by Mr. David MacBrayne, who

appeared as an owner with the building of the "Columba" in 1877, and who is still engaged, with his sons, in the West Highland traffic.

In connection with this enterprise, it is necessary to record the services of Captain John M'Arthur. Son of Alexander M'Arthur, harbour master at Tarbert on Loch Fyne, he began his steamboat career on board the "St. Mun," and after superintending the building of most of the Castle Company's steamers, became ultimately manager of the company. In that position, he displayed marked ability, but on the transference of the steamers



DAVID MACBRAYNE



CAPTAIN ALEX. CAMPBELL



CAPTAIN JOHN CAMPBELL

to David Hutchison & Co. his connection with them ceased.

Alexander and John Campbell appear first

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on the register in 1848 as owners of the "Duchess of Argyle." The Campbells were natives of the Gareloch, but are chiefly remembered in connection with the Kilmun traffic. The two brothers were succeeded by their nephew, Captain Bob, and he continued the business along with his sons, Peter and Alexander, until their steamers were purchased by the Caledonian Steam Packet Company in 1889. During their time they built or purchased the "Mail," "Vivid," "Vesper," "Benmore," "Waverley," and "Madge Wildfire," and the Greenock and Helensburgh steamers "Vesta" and "Meg Merrilies."

In 1853 in connection with the "Eagle," appear the names of Alexander Williamson and William Buchanan. The latter was a native of the Vale of Leven, and was originally engaged in the shipping trade on the Forth. He came to the Clyde in 1852, and built on his own account "Eagle" No. 2, "Brodict Castle," and "Scotia," and he purchased the "Rothesay Castle," built by Henderson in 1865, and ultimately acquired Keith & Campbell's fleet. His three sons, William, John, and James, now own the "Isle of Arran" and "Isle of Bute." Alexander Williamson belonged to Luss, and was connected in the thirties with the Dumbarton and Glasgow steamers. He was afterwards engaged in the Largs, Millport, and Arran service, until he became associated with Buchanan in the ownership of the "Eagle." The two afterwards owned the "Cardiff

Castle" and the "Petrel." In 1861, the partnership was dissolved. Williamson then



CAPTAIN BOB CAMPBELL



PETER CAMPBELL

purchased the "Sultan." He afterwards built the "Sultana" and "Viceroy," and, later



CAPTAIN ALEX. WILLIAMSON, SR.



CAPTAIN W. BUCHANAN

still, acquired the "Marquis of Bute." All these vessels were ultimately sold to the Glasgow and South-Western Company. His

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three sons, James, the writer of these pages, Alexander, and John, are now respectively manager of the Caledonian fleet, manager of the Glasgow and South-Western fleet, and manager and part owner of the turbine and other steamers.

Messrs. Henderson, engineers and ship-builders at Renfrew, appear as owners in 1854, with the building of "Ruby" No. 1. The



CAPTAIN JAS. WILLIAMSON



A. WILLIAMSON, JR.

boats which they produced, notably the three "Rubys," were remarkable and up-to-date in every respect, and the firm continued their connection with the steamboat business until the disposal of their steamers for the purposes of the American blockade.

Captain Robert Young first appeared on the river as master of the "Gourock." As already stated, he was the son of William Young, plumber, Glasgow, and was principal owner of the "Lady Brisbane" and other steamers. In

many respects Captain Bob, as his friends called him, was the type of man necessary for the development of the traffic, his popular nickname of "Captain Kid" was in a measure due to his self-respect, and it is to be regretted that more of his kind were not associated with the business.

In 1855, another well-known name, that of Captain Duncan Stewart, appeared on the list as



ALLAN STEWART



BOB STEWART

part owner of the "Superb." Stewart belonged to Perthshire, but was early associated with the Gareloch service. He built the "Alma," "Argyle," "Victory," "Athole," and "Lorne," and purchased the "Undine." Latterly, he was assisted by his sons Donald, Allan, and Robert, but the career of each of these was short, and on the disposal of the "Undine" the old man retired from the business, one of the few owners who had been fortunate in it, from a financial point of view.

A few years after this date, Captain Alexander M'Lean became associated with his brother Thomas in the ownership of the "Vulcan." The two hailed from Loch Eck side, and were early employed on board the river steamers, Alexander beginning his steamboat career on the "Luna," and continuing it on the Largs boats, his first command being the "Reindeer." His brother was a steward

on the "Gareloch." In 1868, they built the "Marquis of Bute," and they afterwards acquired the "Athole."



CAPTAIN ALEX. M'LEAN

Among Sunday steamboat owners, the most notable appeared in 1861. A. Watson began with the "Rothesay Castle," and, in company with Harry Sharp, he afterwards acquired the "Cardiff Castle" and the "Petrel." Finally, in 1864, he built the "Arran Castle," and, as already stated, went down with her on the voyage to London in the spring of 1865. In the Sunday sailing of these and later Sunday boats, the chief attraction lay in the steward's department. Pandemonium usually reigned on board, and the steamers may be described as nothing but floating hells. The withdrawal of the Sunday licence in 1882 checked the Sunday traffic for a time, but the pests of the river usually tumbled into the Sunday work as a last

resource. The first Sunday boat started in June, 1853. It was the "Emperor," and it was succeeded by the "Alliance," "Cardiff Castle," "Petrel," "Kingston," "Prince of Wales," "Dunoon Castle," "Lough Foyle," "Marquis of Lorne," "Victoria," "Heather Bell," and "Duchess of York."

Captain James Gillies and his son-in-law, Alexander Campbell, appear in the list of



JAS. GILLIES



CAPTAIN ALEX. CAMPBELL

owners in 1868. The former was, to begin with, employed by the Largs Steamboat Company in various capacities, and after acting as a master of that company's steamers for many years, he purchased the "Venus." Captain Alexander Campbell had his early training on board the Clyde steamers, and served afterwards in the Anchor Line. After their engagement in the Wemyss Bay service in 1869, the two partners purchased the "Argyle," "Victory," "Largs," "Dunoon Castle," and

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"Bonnie Doon," and built the "Lady Gertrude," "Sheila," "Adela," and "Victoria." Their retirement from the Wemyss Bay service in 1890 has already been described.

The last to appear on the list, and the last private owner to build in the nineteenth century was Captain John Williamson, fourth son of Captain Alexander Williamson. The "Strathmore," launched by him in 1897, from present appearances is likely to be the last steamer built by a private owner for Clyde passenger traffic.

During their whole career, and particularly since 1850, these owners had a record remarkably free from disaster. Their worst catastrophe was the hurricane in February, 1856, when nearly all the steamers laid up at Bowling were more or less seriously damaged.

Hardly less interesting than the list of owners is the list of captains who commanded the vessels. To begin with the master of the early "Comet," William M'Kenzie, the following short account, by himself, found among the papers of the late Robert Napier of West Shandon, may be quoted in full:

"In March, 1812, was engaged by Mr Henry Bell of Baths, Helensburgh, to sail his 'Comet' steamer as master, and on 1st April of same year was sent to superintend her building in Mr. John Wood's shipbuilding yard, Port-Glasgow; launched her in July with all her machinery, &c., on board, completely ready for sailing; sailed early in August following with

passengers between Glasgow and Greenock. Got badly in my health in December, 1812, and was obliged to leave the 'Comet;' joined the 'Clyde' steamer in March, 1813, as pilot (John Robertson and Robert Steven, owners); sailed on 20th June of same year with passengers between Glasgow, Greenock, and Gourock. Appointed master of the 'Clyde' steamer early in 1815, and continued to sail her till February, 1817, when I got command of the 'Marquis of Bute' steamer (John Robertson, owner); plied with passengers between Glasgow, Greenock, and Gourock. Left the 'Marquis of Bute' early in 1819 and joined the 'Greenock' steamer as master (Malcolm M'Gregor, Aitchison, and others, owners); sailed with passengers between Glasgow, Greenock, and Helensburgh. In June, 1821, Dr. Stevenson became owner of the 'Greenock' steamer, and continued her still on that station, I still as master; in February, 1825, joined the 'George Canning' steamer as master (Dr. Stevenson, Hugh Price, and others, owners) which sailed between Glasgow and Belfast with passengers. Left the 'George Canning' early in 1826 and joined the 'James Ewing' as master, owned by the same owners, plying between Glasgow, Greenock, and Lochgilphead, and occasionally to Inveraray, with passengers and goods. Left the 'James Ewing' steamer, in the winter of 1827, and joined the 'Sir John Moore' steamer as master (Dr. Stevenson, Hugh Price, and others, owners) and sailed with passengers between

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Glasgow, Greenock, Rothesay, and Lochgilphead, I becoming an owner of her at the same time. The 'Sir John Moore' being sold in February, 1828, I returned to my old vessel, the 'George Canning,' owned by her former owners, and sailed her as master between Glasgow and Rothesay with passengers. In the end of 1829 left the 'George Canning' and contracted for and got built the 'Superb' steamer, myself owner, and sailed her as master between Glasgow, Greenock, and Rothesay, and occasionally in the summer months to Tarbert with goods and passengers in the years 1830 and 1831. In March, 1832, sold the 'Superb' steamer to Dr. Stevenson, who continued to run her on the Rothesay station, I still sailing her as her master. The Doctor having disposed of the 'Superb' in the summer of 1832, I sailed the 'Largs' steamer as master (James Whitelaw, Robert Kennedy, and others, owners), which plied between Glasgow and Largs with passengers and continued in her till laid up. Sailed the 'Windsor Castle' steamer, for Captain Thomson, three to four months in the winter of 1832 and 1833 (Kirkman Finlay, James Ewing, and others, owners), plying between Glasgow and Rothesay with passengers. In May, 1833, sailed the 'Clarence' steamer as master, which plied between Glasgow and Helensburgh with passengers (James Smith, Lorn Campbell, and others, owners), continuing on her till the end of November, when she was laid up. In May, 1834, was appointed master

of the 'Albion' steamer, which sailed between Greenock, Largs, Ardrossan, and Arran with passengers (James Whitelaw, Robert Kennedy, and others, owners), and continued by her till laid up at the end of the summer. In 1835, laid up with a severe attack of rheumatism, and not able for employment. In March, 1836, joined the Kilmun steamer as pilot, and appointed master in August (Hugh Price, George Ord, and others, owners), plying between Glasgow and Kilmun with passengers, and continued by her till a change of owners took place in December. In May, 1837, appointed to the 'Cigar' steamer (James Lumsden, Andrew Campbell, and others, owners), and sailed her as master, plying between Glasgow, Greenock, and Gourock with passengers, and continued by her till the end of summer, when it was found that the plan on which she was constructed would not answer their expectations, and she was altogether laid aside. In May of 1838 went mate of the 'Edinburgh Castle' steamer, from the Clyde to Rye in England, being purchased by a Mr. Fruen in that vicinity to open up a communication between that port and Boulogne in France, but finding that after six months' trial it would not pay, the vessel was withdrawn from that station and sold. In May, 1839, sailed the 'Royal Victoria' steamer as master, chartered by Hamilton Brother & Co., from Mr. Barr, owner, to carry passengers between Glasgow, Greenock, and Dunoon for the summer months. In 1840 not

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employed. In May, 1841, appointed master of the 'Staffa' steamer (Thomson & M'Connell, and others, owners), and sent out to Oban to remain there to keep up their arrangements in conveying passengers and goods to the various places in the Highlands, and remained by her till ordered to Glasgow and laid up in January, 1842. In June, 1842, was laid up with a severe attack of rheumatism, and confined to bed nearly twelve months, and am now only restored to my wonted health.

“(Sgtl.) WM. M'KENZIE.

“GLASGOW, 26th January, 1844.”

During the early days of the enterprise all sorts and conditions of men appear to have been attracted to the command of the steamers. They possessed no certificates—indeed, in the earlier days certificates of efficiency do not seem to have been required. The oldest document of the kind was in the form of a river licence, granted by the Pilot Board, and available for the navigation of passenger steamers inside the Cumbræ heads, and as a matter of fact, no other paper is necessary at the present day, although in all well-regulated steamboat companies a Board of Trade certificate is essential to obtaining a command. The first Pilot Board licence was granted to John Ferguson on 17th November, 1829.

The early list of captains contains the names of men who had formerly been schoolmasters, weavers, carriers, and the like, and apparently

they managed to get along well enough, in an easy-going way. The captain of the "Comet," however, seems to have possessed real natural ability.

The next skipper, of this good old-fashioned sort, of whom a record remains, was Captain James Johnstone. He first appeared as master of the "Inveraray Castle" in 1814, and assumed at once the position expected of a master towards his passengers and crew, being polite in his bearing towards all with whom he came in contact. There seems to have been good old-fashioned courtesy in his manner, and it is told of him that he used to make the announcement to his cabin passengers—"Ladies and gentlemen, we are now collecting the passage-money." This collection of the fares, by the way, formed one of the duties of the captain until quite recently. Captain Johnstone seems to have been something of a sportsman in his time, as he is credited with the introduction of the rabbit into Bute, with a view to the spending of his leisure time in shooting. He next appears in command of the "Dumbarton Castle" in 1815, and was subsequently master of the "Dunoon Castle" in 1826, the "Arran Castle" in 1830, and the "Earl Grey" in 1832. The "Maid of Bute," in 1835, seems to have been his last command.

The other well and favourably known masters of this period were Dugald Thomson, Dan M'Arthur, D. Wyse, Leitch, and John Kay. The last named was associated with the

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"Albion" in 1816, on the Largs and Millport station, and on his retirement, received a testimonial from his owners.

Peter Graham, of the Loch Goil company, was the first to occupy the dual position of captain and part owner. He made his *début* on board the "Oscar" in 1818, and afterwards appeared as master of the "St. Catherine" in 1825, the "St. George" in 1826, the "Loch Goil" in 1835, and the "Loch Goil" No. 2 in 1841. Graham was most popular and energetic, and at the time of his death was the oldest captain associated with steam in Europe.

The masters whose names were associated with unfortunate incidents in the twenties were Captain M'Innes of the "Comet" No. 2, and Captain Clelland of the "Ayr." The latter, on the collision occurring between his vessel and the "Comet," seems to have become demoralised. At any rate he acted the part of a coward during the sinking of the other ship, and has thus left the most unenviable record in the list of Clyde steamboat masters.

Neil M'Kinnon appears for the first time as captain of the "Ben Nevis," although R. Bain is entered on the register as first master of the boat. The former was brother of the late Captain John M'Kinnon of Gourock, and uncle of the present Captain Alexander M'Kinnon of Greenock and Gourock.

Captains Kay and Niven were in turn masters of the "Largs," the former appearing on the register as master in 1822.

Captain James Henderson, of the Henderson & M'Kellar fleet of Helensburgh steamers, was another master who was also an owner. He began with the "Sovereign" in 1824.

Captain Peter Turner began his career on the "Ben Lomond" in 1825, and in 1827 commanded the "Clarence." He won the cup given by the Northern Yacht Club. From the "Clarence" he went to the "Rob Roy" in 1834, and he became master of the "Culloden" in 1845.

Still another master who was also an owner was Captain John M'Kinnon. He began life as boy on board the "Comet" No. 1, and continued his connection with the traffic till his death in 1881. His first appearance as master was on the "Rothesay" in 1831, and in the latter part of his long career on the river he was well-known as a tug-boat owner.

The *rôle* of captain and part owner was in fact early established, and continued in a greater or less degree to the end of the century. On the list, at successive dates, appear the names of M'Kellar, Henderson, Currie, M'Gill, Stewart, Buchanan, Williamson, Young, Campbell, M'Lean, Gillies, and M'Aulay. Each of these was both captain and owner, and was closely identified with the traffic.

Down to the seventies, the captain undertook the duties of purser, while the steersman acted as supercargo, and in isolated cases to the present day the same arrangement is in force. Since the seventies, however, a regular purser

has as a rule been added to the crew, and in most cases, a chief officer also. These additions certainly have imparted greater efficiency to the management of the steamers. At the present day the temporary pursers and their assistants are during the busy summer months recruited from the ranks of the Gilmorehill students. By this means, these young men secure during the summer recess a respectable remuneration and a healthful holiday combined, while they have an opportunity of adding to their curriculum a knowledge of human nature which could not be obtained in the halls of learning, and will no doubt be useful to them in whatever profession they decide to follow.

The composition of the deck crew has always been Highland, and the men possess the merit of being steady, intelligent, and well-conducted. The personnel of the engine-room, on the other hand, is varied as to race, character and ability, though it must be noted that a great improvement in intelligence has taken place within the last quarter of a century. The crew on the average steamer of the twenties numbered thirteen, all told. On board the smaller classes of steamer of the present day, the number is sixteen. In the interval, the wages have doubled, and the average value of the vessel has become five times as great.

Order and discipline have varied according to circumstances, these circumstances being for the most part dependent on the character of the captain and officers, which give the keynote to

both manners and methods on board. An all-round marked improvement, however, in the demeanour of all connected with the traffic has taken place within recent years. For this improvement a large part of the credit is, no doubt, due to the transference of control into the hands of the great railway companies, with their rules and regulations and power of enforcing them.

In the character of the passengers carried by the steamers great changes have also taken place. Some amusing incidents naturally occurred in the early days of the industry. It is told, for instance, that, on the first run of the "Comet," two passengers left her at Bowling, and walked to their destination at Helensburgh; they had so little faith in the safety of the craft. Even in the thirties, there is a story of an altercation between the captain of the Largs steamer and an old lady passenger. The latter wanted the steamer to be run ashore at Skelmorlie so that she might walk to Largs, as she was apprehensive of the vessel "rummeling ower."

Occasionally, passengers attempted to "take their fun off" the officials, and occasionally they met their match. On the introduction of the first opposition to the Largs and Ayr Company, there was appointed as Largs agent a townsman of that place who was noted for his wit. One of the agent's duties was to exhibit a board showing the times of arrival and departure of his company's steamers. On one occasion he had just posted up his afternoon sailings,

when some youths, bent on having a joke at his expense, asked him if he knew the meaning of the letters P.M. His reply was, "Ou aye, fine I ken the meanin' o' them. I took a lang while to fin' it oot, but no sae lang as the likes o' you wad tak'." "And what is the meaning of them?" they enquired. "They just mean," he replied, "P. for punctual, and M. for 'meenit'—Punctual to the meenit. A' oor boats sail punctual to a meenit, an' if ye wad traivel wi' them ye wad fin' that oot for yoursels."

The Glasgow people, again, appear to have had a great dread of the first iron steamer, the "Fairy Queen," built in 1831. She was carted in pieces from the Phoenix Ironworks, where she was made, to the Broomielaw, and put together there; and it is said that several who witnessed the process wrote to friends along the river side entreating them not to go on board if she ever reached their neighbourhood, as "it was weel kent in Glesca that iron couldna soom."

A marked improvement has taken place in the personal behaviour and even in the appearance of holiday passengers during the last twenty years, a fact, no doubt, due in part at least to the more efficient management introduced by the railway companies. During Glasgow Fair Holidays, as late as the eighties, the rowdy element among the passengers amounted to ninety per cent. During the same holidays at the present day it does not reach five per cent.

From very early days, the steamers have been freely chartered for special purposes and official excursions. Several of these engagements have already been alluded to. One deserving particular mention is the annual inspection of lighthouses. The earliest record of this inspection occurs in 1835, when the boat engaged was the "Northern Yacht." The vessel was a great favourite with the Glasgow magistrates, but whether their preference was due to the merits of the boat itself, or to the hospitality of the steward's department on board, is not quite clear.

CHAPTER XIII

THE PRESENT POSITION

THE facilities afforded by the steamers on the River and Firth of Clyde had perhaps their most striking effect in the development of the coast towns and pleasure resorts. During the last fifty years many of the most popular watering-places have practically been brought into existence by the plying of the steamers, while the older communities have increased beyond all expectation. In the Cowal district, for instance, the resident population in 1836 was 1306. In 1901 it was 10,468. The valuation roll in 1885 was £124,911, and in 1901 it was £140,826. In Bute and Cumbrae, again, the population in 1821 was 13,797; in 1851, 16,608; and in 1901, 18,787; while the valuation increased from £19,686 in 1850 to £71,533 in 1900. An attempt to estimate the summer population of these resorts during the early period is difficult and uncertain; but towards the close of the century the resident visitors to the Cowal district would number not less than 40,000, and those to the Cumbraes and Bute not less than 80,000 in each season.



DUNOON PIER



ROTHESAY PIER

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Dunoon and Rothesay are the greatest centres of attraction on the firth. At present they are being rapidly developed, and from their importance they will always be in a position to demand from the railway steamers the first call on arrival and the last on departure at the important hours of the day, an advantage which must greatly help their future development. In the island of Arran, on the other hand, progress has been slow, on account, as already stated, of the severe restriction on feuing. If this restriction were removed, and feuing permitted under reasonable conditions, there can be little doubt the development of the island as a summer resort would be all but unlimited.

As matters stand, the Clyde passenger traffic to-day is practically controlled by the three railway companies, Caledonian, North British, and Glasgow and South-Western, the Caledonian possessing outlets at Gourock, Wemyss Bay, and Ardrossan; the North British at Craigendoran; and the Glasgow and South-Western at Princes Pier (Greenock), Fairlie, and Ardrossan. Four private owners, in addition to their railway connections, attend to the up-river traffic, but this has been reduced to insignificant dimensions.

Some idea of the decline of the up-river traffic may be gathered from the following table:

Number of vessels plying between Glasgow and Greenock, Helensburgh, Gareloch, Kil-

mun, Gourock, Dunoon, Rothesay, Largs, Millport, Ayr, and Arran :

			During Summer.	During Winter.
In 1860,	-	-	30	6
„ 1870,	-	-	25	5
„ 1880,	-	-	26	3
„ 1890,	-	-	14	3
„ 1900,	-	-	10	1

The position is viewed with alarm by some pessimists, but the majority of the public is not



GOUROCK

only satisfied with things as they are, but has good reason to be so. In the pre-railway days the business was unprofitable to the private owner, and in his circumstances he could not be expected to build and equip boats possessing the comforts of the steamers running in connection with the powerful railway companies. Nowhere in the world is the same accommodation and comfort in sailing to be had, with the same

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frequency of service, at fares so moderate. An idea of this service may be gathered from the following facts :

In connection with the Caledonian Railway Company there are twenty sailings from Gourrock pier daily to all parts of the Coast, and a corresponding number on the return journey ;



WEMYSS BAY

twelve from Wemyss Bay to Rothesay and Largs and Millport ; and two from Ardrossan to Arran, with additional services in each case on Saturdays.

In connection with the Glasgow and South-Western Company there are sixteen sailings from Princes Pier ; five from Fairlie to Millport and Kilchattan Bay ; and two from Ardrossan to Arran, with several additions on Saturdays in each case.

From Craigendoran there are sixteen sailings daily, with additional runs on Saturdays.

But while the public is thus served with thorough efficiency, and the coast towns and places of resort are thriving and being developed at an unheard-of rate, there is another side to the business. There is reason to believe



CRAIGENDORAN

that without diminishing the efficiency of the service to the public, the trade might be managed with greater economy and profit to the companies themselves. The sailing programme will be seen, from the statement given above, to be practically one in triplicate. As a matter of fact much of the service is superfluous and needless, the sole advantage derived from the running of three steamers where one would serve being to afford the public a choice of route. One has only to watch the converg-

ing of the steamers from the coast towns off Gourock on a summer morning between eight o'clock and a quarter past. At that hour there are in sight no fewer than nine steamers on five days of the week, and eleven on Mondays. This flotilla is employed



PRINCES PIER

to carry passengers who, in the aggregate, could be accommodated comfortably on board three steamers. The point and hour, it is true, are the most congested on the firth; but at various other points, and at more or less frequent intervals throughout the day, a similar surplus of service is to be observed. The entire performance is in reality a continuation of the steamboat fight for supremacy, the only difference being, that the combatants are now more formidable and the struggle more wasteful than it ever was before.

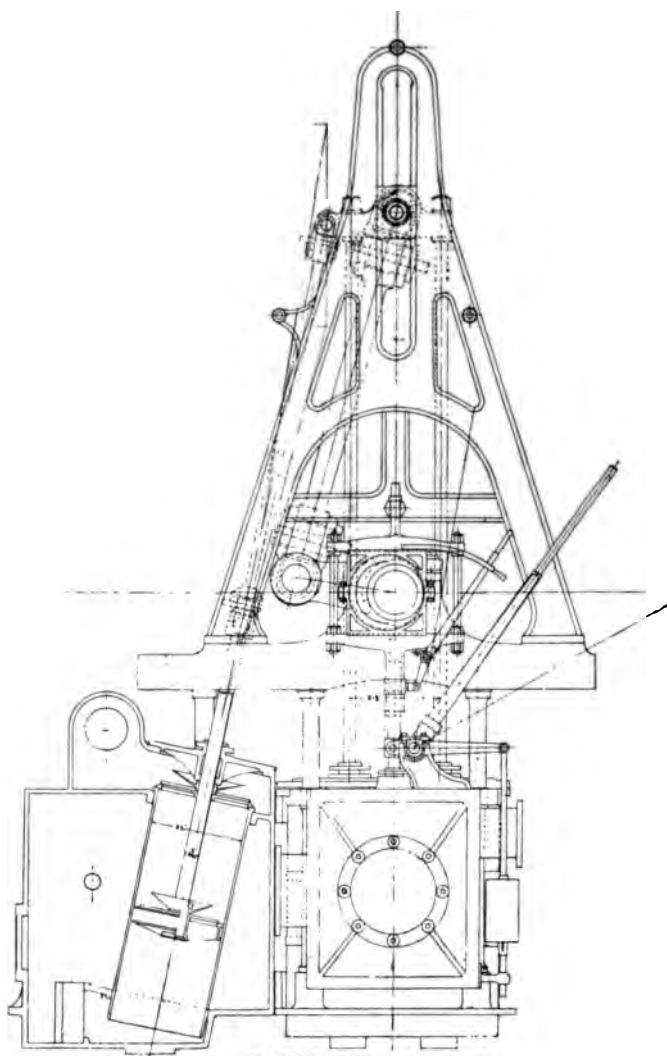
CHAPTER XIV

BOILERS AND ENGINES

WITHOUT attempting to repeat engineering history or to submit anything like a treatise on the subject, it may be of service to state here simply and concisely the different designs of boilers and engines which have been employed on the Clyde steamers.

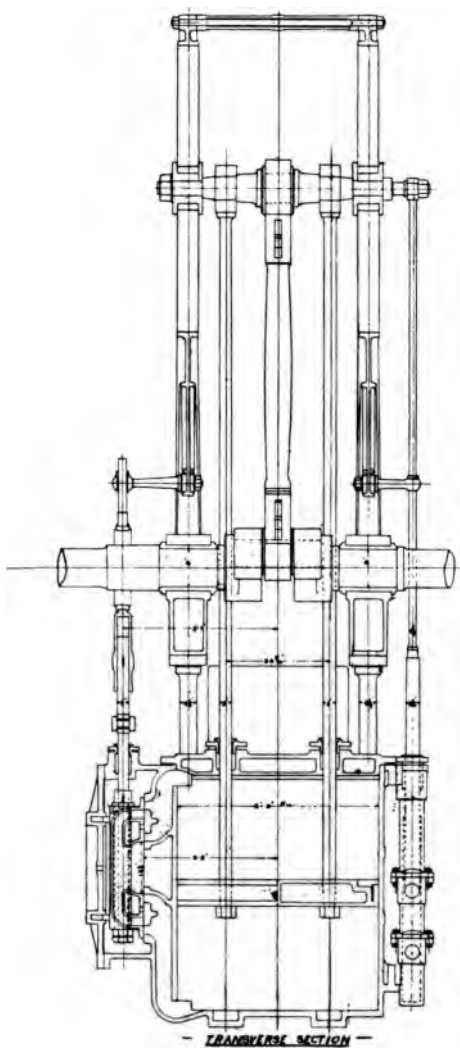
As already mentioned, the "Comet" of 1812 was fitted with a half side-lever engine and an internal flue boiler. No authentic record has been left as to the steam pressure, but it may safely be assumed that this did not exceed 5 lbs. per square inch. The side-lever engine with flue boiler was next introduced, and seems to have continued in favour till the close of the thirties. The "St. Mungo," in 1835, was the first river steamer fitted with a steeple engine, and the first tubular boiler was fitted to the "Luna" in 1838. In the interval the steam pressure had gradually risen to 20 lbs., and since then improvement has followed improvement until the steam engine has been superseded by the steam turbine.

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— FRONT ELEVATION. —

VIVID'S ENGINE



VIVID'S ENGINE

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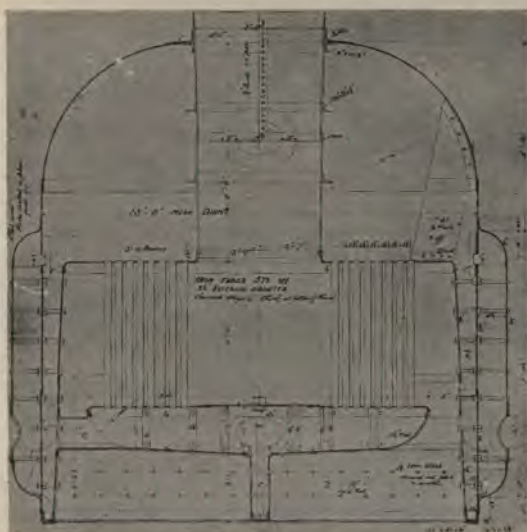
During the forties, the types of engine in vogue were the steeple and the diagonal, supplied with steam from flue and haystack boilers. In the fifties, the steeple engine and haystack boiler were the combination which predominated, and in the sixties, favour was equally divided between oscillating and diagonal engines. Three-fourths of the boilers made during this decade were of the haystack type. The remainder were horizontal. The steam pressure was 40 lbs.

In the seventies the combination in favour was the diagonal engine and haystack boiler, with a steam pressure of 50 lbs. During the eighties, the vogue was for diagonal engines with jet condenser and haystack boilers. The diagonal compound engine, with navy type of boiler, also came into use, with steam pressures of 90 and 100 lbs., and forced draught was introduced. And in the nineties, the compound diagonal engine, with navy boiler, came into general use, working at pressures of 100 to 150 lbs.

In 1901, a radical departure was made with the launching of the "King Edward," the first passenger vessel to be propelled by steam turbines.

It is unnecessary to discuss obsolete types of boilers and machinery, but it may not be amiss to close with some observations on the present-day type of machinery and boiler. The machinery is altogether of the diagonal type :

Single diagonal ; surface condensing.



'IVANHOE'S' BOILER

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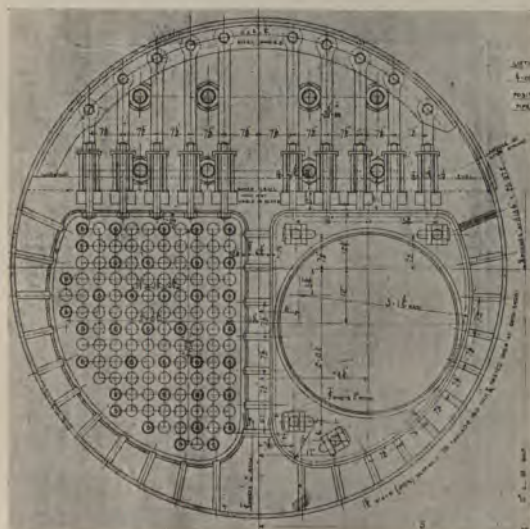
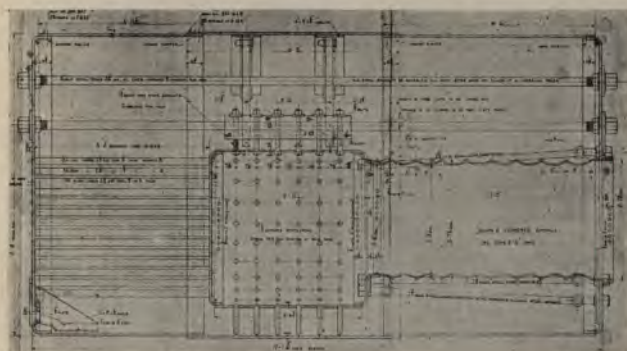
Single diagonal tandem compound ; surface condensing.

Double diagonal tandem triple expansion ; surface condensing.

Double diagonal compound ; surface condensing.

The last mentioned, with a boiler pressure of 120 lbs., is undoubtedly the most successful paddle engine for the conditions attached to Clyde traffic. The triple expansion engine, although showing economy of 10 per cent. to 13 per cent. over the compound on long distances and steady steaming, possesses, for intermediate or short distance traffic, the disadvantages of greater first cost, weight, and condensation, as well as of greater waste of steam in the frequent stoppages ; its greatest advantage being obtained while manœuvring alongside piers.

As the person responsible for the introduction of the compound tandem surface-condensing engine, with navy type of boiler, and forced draught, placed first on board the "Caledonia" in 1889, the writer may be allowed to give some details of its working. Altogether the combination has given excellent results. The coal consumption in particular has shown a decided economy over that of the low-pressure types. It must be admitted that the boilers gave some concern, not on account of their construction or workmanship, but on account of the excessive use of the fan. At first, it was not uncommon for the engineers to indulge in 2 in. air pressure, and this meant leaky tubes ;



'DUCHESS OF MONTROSE'S' BOILER

but the air pressure has been steadily reduced to $\frac{1}{2}$ in. and $\frac{3}{4}$ in. for regular working, and 1 in. as a maximum, which gives no trouble so long as the fire grate is kept covered.

In regard to the treatment of the navy boiler under forced draught; there has been considerable controversy, and many experiments have been made to overcome the leakage of tubes and furnace ends. The device employed by the Admiralty is to fit ferrules into all the tubes, and the only drawback to this is the "bird-nesting," which forms within a few days. In our latest pattern of navy boiler there is a subdivision of the combustion chamber. The area of the chamber is at the same time very much increased, while the tubes are reduced in length with good results. The landings of the furnace ends are protected by circular fireclay brick 2 in. thick by 9 in. broad, and at the centre of the combustion chamber, there is a hanging bridge. The latter is supported by "lugs" at each side of the chamber, the bottom of the bridge itself being just in line with the top of the back bridge at the end of the fire bars, and on a level with the bars at the furnace door, the bars drooping $1\frac{1}{2}$ in. per foot.

Care, however, has to be taken that the ash-pit and furnace doors are a good fit, and kept closed after the machinery is stopped; in fact, all the entrances to the stokehold must be a good fit in order that the cooling down may be as gradual as possible. Boilers ought not to be blown down, but allowed to cool gradually for

at least twelve hours, and then run out. Steam should never be raised from cold water under 12 hours—longer if time will permit, otherwise the life of the boiler will be shortened proportionately. Another most important precaution in the treatment of boilers is to keep them as



'LORNE'S' ENGINE

free from oil and other impurities as feed filters will permit.

The small diameter of the paddle wheel and the greater piston speed certainly increase the tear and wear, but as compensation there is less weight to carry, which means economy.

A considerable amount of the tear and wear to paddle wheels can be overcome if attention is given to the design. Wheels are like boilers

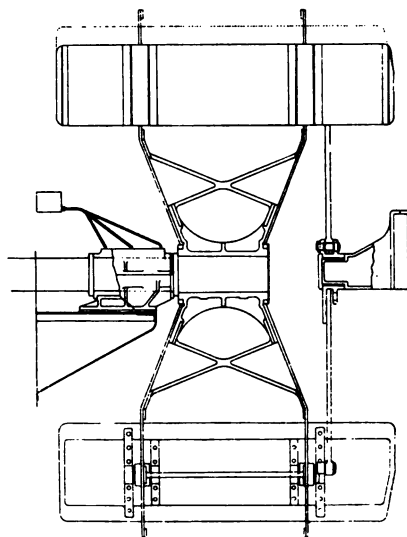
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—always pared to a fraction, the result being inefficiency. The former, no doubt, are correctly designed from a scientific point of view, but the fact that they have often to be very suddenly reversed with a full cargo on board, and sometimes in charge of a captain who is not scientifically inclined, the strengths and surfaces are often altogether wrong.

Deterioration has been most pronounced in steel paddle shafting. This, although of ample strength for the first few months, gradually becomes weaker by reason of the crystallization brought about by vibration. Experience has proved that 15 per cent. over Board of Trade rules must be allowed as a margin of safety, and even that is not enough if the vessel has incompetent men on the bridge or in the engine-room.

The following are particulars of a test, made on board the "Meg Merrilies," of the Haythorn water-tube boiler, which had to be withdrawn after fifteen months' use.

The trial was made with two of Haythorn's water tube boilers fitted on board the above steamer and jointly supplying steam to a set of compound, surface-condensing, diagonal paddle engines, having cylinders 24-in. diameter and 42-in. diameter by 5-ft. stroke, and working under forced draught on the closed stoke-hole principle. The trial was made on 21st December, 1898, and lasted about six hours, during which time the vessel was cruising about the Firth of Clyde generally on a straight course,



PADDLE WHEEL

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and, when turning was unavoidable, the bends were long and easy so as not to affect the speed of the engine. The engine was supplied by steam through a reducing valve, the mean pressure at the engine and at the boilers being given below in the results. The trial was made immediately after the boilers had been overhauled, and they were clean and in good order. The coal was weighed out of the bunkers on to the floor plates with a tested Salter Balance. Fires were not cleaned out during the trial. After everything had been going steadily for about an hour the firing was stopped, and whenever the pressure began to go back, weighed coal was put on the fires and the trial started. At the end of the trial firing was again stopped till the steam pressure again began to fall, when the trial ended. Feed water was measured into two Tanks in the ordinary way. No hitch occurred during the trial, and the measurements can be taken as absolutely accurate. It will be seen, however, from the results that the engine is very inefficient, while the boilers are extraordinarily good, and again, in the heat balance, it will be seen that there is only 23% of the total heat unaccounted for, and this without any allowance being made for heat lost by radiation. All this points to a considerable quantity of water passing from the boiler into the engine unevaporated. A subsequent test was made by Professor Watkinson to find the "dryness factor" of the steam. This trial was made on 17th February,

1899, while the steamer was on her usual service, the mean steam pressure being 183 lbs., air pressure in stokehole $\frac{1}{2}$ -in. water; revolutions of main engines 31. The mean result of this experiment shows 2·6 per cent. of water in the steam. This brings down the efficiency of the Boilers to barely 72 per cent., but the difference is so small that the calculations have not been corrected for this. The Calorimeter used was the "Barrus" without a Separator, and, as this instrument does not show large quantities of priming, the conclusion is that there must have been a very considerable amount of priming going on at the trial.

BOILERS—Two Haythorn Water Tube Boilers—

Heating surface, - - - - -	3444 sq. ft.
Grate area, - - - - -	61 "
Heating surface—	
Ratio grate area, - - - - -	56·4
Mean steam pressure above atmosphere,	186 lbs.

ENGINES—

Mean revolutions per minute, - -	32·4
Mean indicated horse power, - -	613
Mean steam pressure above atmosphere	
at engine, - - - - -	125½ lbs.

TEMPERATURES—

Mean funnel temperature, about - -	600°
Mean temperature of stokehole, - -	68°
Mean temperature of feed water, - -	127·4°

DRAUGHT—

Mean funnel draught below atmosphere,	35 in. water.
Mean air pressure in stokehole above	
atmosphere, - - - - -	55 "
<hr/>	
Total, - - -	9 in. water.

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COAL—Quality—Welsh—

Carbon value per lb. of coal $\frac{14014}{14600}$					96
Analysis—Carbon,	-	-	-	-	83'63 per cent.
Hydrogen,	-	-	-	-	3'70 "
Oxygen,	-	-	-	-	4'48 "
Nitrogen,	-	-	-	-	'99 "
Sulphur,	-	-	-	-	'7 "
Water,	-	-	-	-	1'28 "
Ashes,	-	-	-	-	5'22 "

The actual ashes found after the trial amount to 6'2 per cent.
Theoretical evaporative power 14'5 lbs., water from and at 212°.

ANALYSIS OF SMOKE—Mean of Three Samples.

	By Volume.	By Weight.
Carbonic Acid, - - -	8'17	12'1
Carbonic Oxide, - - -	'1	'09
Hydro Carbons, - - -	—	—
Oxygen, - - -	10'3	11'03
Nitrogen, - - -	81'43	76'78
	100'	100'

Total coal used in 6 hours 3 minutes, -	9321	lbs.
Used per hour, - - -	1541	"
„ per sq. ft. of grate, -	25'26	"
„ „ of heating surface, -	'447	"
„ per indicated horse power, -	2'52	"
Carbon Value used per hour per I.H.P., -	2'42	"

ASHES—

Total ashes for 6 hours 3 minutes, - -	95	lbs.
Total clinker for 6 hours 3 minutes, - -	482	"
Total, - - -	577	lbs.
Ashes and clinker per hour, - - -	95	"
„ „ percentage of coal, 6'2 per cent.		

BOILERS AND ENGINES

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WATER—Measured for 5 hours 47 mins. 11 secs.—

Total quantity from hotwell, - - -	80943 lbs.
Supplementary from tanks, - - -	2133 „
Total, - - -	83076 lbs.
Water per hour, - - -	14345 „
„ per sq. ft. grate, - - -	235 „
„ „ heating surface, - - -	4'165 „
„ per indicated horse power, - - -	23'44 „
Water evaporated per lb. of coal from temperature of feed water, - - -	9'309 „
Water evaporated per lb. of coal from and at 212°, - - -	10'62 „
Water evaporated per lb. of carbon value from and at 212°, - - -	11'06 „

HEAT—

Heat units per lb. of coal used, - - -	14014 units.
Heat taken up by feed water per minute, - - -	263727 „
Heat taken up by feed water per I.H.P. per minute, - - -	431 „
Efficiency of engine $\frac{42'7}{43'1}$ -	9'9 per cent.
Efficiency of boiler $\frac{10'62}{14'5}$ -	73'2 - 73'2 per cent.
Combined efficiency of engine and boiler, -	7'24 per cent.

HEAT BALANCE.

Heat Evolved.	Units.	Per Cent.	Heat Absorbed.	Units.	Per Cent.
Total heat units per lb. of coal used, - - -	14014	100	Heating and evaporating feed water, -	10271	73'2
			Evaporating moisture in coal, - - -	18	'13
			Loss due to moisture formed by burning hydrogen in coal, -	431	3'07
			Heating furnace gases, -	3160	22'55
			Loss by imperfect combustion, - - -	101	'72
			Unaccounted for, -	33	'23
Total, -	14014	100	Total, - - -	14014	99'90

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In 1893 a test of oil fuel was conducted on board the "Caledonia" under the superintendence of Mr. J. Farmer of Glasgow. The test lasted for six months, and proved successful, dispelling all doubt as to the superiority of oil as a fuel compared with coal. The increased prices demanded by the oil merchants, however, proved prohibitive, and it was with much regret that the apparatus had to be withdrawn. The absence of smoke added to the comfort of the passengers on board the steamer, and enabled them to view the magnificent scenery on the firth unimpeded by the dense volume of cloud raised by the consumption of coal fuel.

COMPARATIVE STATEMENT OF CONSUMPT OF COAL FUEL, 1892, AND OIL FUEL, 1893—P.S. "CALEDONIA."

1892—COAL.

Months.	Working Days.	Miles for month.	Coal for month. Tons.	Average Miles per day.	Average Coal per day. Tons.
May, - -	26	2,794	188	107½	7½
June, - -	26	3,050	198	117	7½
July, - -	26	3,155	214	121	8
August, - -	27	3,216	221	119	8

1893—SCOTCH FURNACE OIL, ETC.

Months.	Working Days.	Miles.	Oil in gallons.	Coal, Coke, & Nuts. Tons.	Average miles per day.	Average gallons per day.	Average Coke, &c. per day. T. C.
May, -	25	2,169	16,590	62	86½	663	2·10
June, -	26	3,284	24,570	63	126	945	2· 8
July, -	26	3,417	30,570	54	131½	1,176	2· 1
August, -	27	3,394	30,287	39	125	1,122	1· 9

At the furnace mouth, 12 in. furnace bars were fitted so that coke and coal could be used, the former to ignite the oil spray when the steamer was moored for long intervals, the latter for raising steam on Monday mornings.

It is interesting to note that the average speed was better with the oil fuel than with coal.

CHAPTER XV

ROBERT NAPIER

THIS volume would be incomplete without special mention of two men whose achievements form no inconsiderable part of the history of steamship building on the Clyde. Robert Napier and Peter Denny both contributed largely by their energy, perseverance, and ingenuity towards the Clyde becoming the greatest centre of the shipbuilding industries.

Robert Napier, the founder of the firm of Robert Napier & Sons, was descended from a family which had for a long time been connected with Dumbartonshire. The line of his direct ancestors for nearly a century affords an example of a fact which is more common than usually supposed, viz., the hereditary transmission of skill and talent, for they all followed the craft of blacksmiths.

James Napier, Robert's father, was smith to the town of Dumbarton and was a much respected burgess of that ancient Royal Burgh. Robert was his eldest son and was born on the 18th June, 1791. At an early age he was



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sent to the Parish School, acquiring there a knowledge of English and the rudiments of Latin and French. He also got instruction in drawing, and developed a taste for this which was carefully fostered by his master, Mr. Traill, to whom he considered himself under great obligations. His parents destined him for the Church, but he himself preferred the anvil, so, leaving the professional education for his brother Peter, who afterwards became minister of the College Church in Glasgow, he began in 1807 a five years' apprenticeship to his father.

During his apprenticeship, Napier executed smith work for Stirling's Calico Works and other neighbouring establishments, and in his spare moments he occupied himself in making small tools, drawing instruments, guns, gunlocks, etc. In 1812, on the completion of his indenture, he set out for Edinburgh, where at first he had a hard struggle to live on low wages, but at last he succeeded in getting an appointment under Robert Stevenson, the celebrated lighthouse engineer, and there he remained for a time.

In May, 1815, he commenced business for himself in Glasgow in Greyfriars Wynd. He had only £50 of capital, and at first worked with two apprentices, confining his efforts to smith work and occasionally making Bramah presses. He speedily became known as an expert craftsman, and was admitted into the Incorporation of Hammermen in which he took

a prominent position. Before admission, the applicant had to give proof of his skill, and at one of his latest public appearances, Mr. Napier displayed the hammer he had forged in presence of two members of the Master Court in token of his right to enter the Corporation.

In 1818 the young smith married his cousin Isabella, daughter of John Napier of Cardross, and sister of David Napier, and shortly afterwards we find him established in the latter's former premises at Camlachie. He now branched out a little, and began casting water pipes for the City of Glasgow, and making small land engines, in which undertakings he was assisted by David Elder, a well-known millwright, to whom he entrusted the full management of the works. He was, however, untried as a marine engineer, and it was not until 1824 that he managed to obtain an order for the engine of a steamboat.

Some Dumbarton friends were building a vessel, and Napier induced them to entrust him the machinery, guaranteeing "to make the vessel sail equal to any other of the same draught." The steamer was called the "Leven," a small vessel 86 ft. long, with a side lever engine of 33 H.P. Various improvements on the air pump condenser and slide valve were introduced, and special care was taken in the construction of the machinery. The venture was a great success, and after working many years on the river, the engine was in 1844 transferred to the "Queen of Beauty," which

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ran on the Gareloch till the late fifties. This machinery now stands on a pedestal at Dumbarton Pier, a monument of honest workmanship, and a relic of a bygone age.

Orders for other steamers followed, and in 1827 Napier constructed the engine for the fastest boat on the river. The "Clarence" was 99 ft. long, 16 ft. broad, with an engine of 45 H.P., and was commanded by Captain Turner. At the Royal Northern Regatta in August, 1827, she won the cup for the swiftest steam vessel, after a race of three hours' duration, the "Helensburgh," also built by Napier, coming in second. This successful performance of the "Clarence" had far-reaching effects on his fortunes. It established his reputation as an engineer, and the steamboat race inspired Mr. Assheton Smith with a desire to have a steam yacht. Mr. Smith was a prominent member of the Royal Yacht Squadron, but the idea of steam yachts was so repugnant to the other members that he quarrelled with them and resigned. Determined to proceed with his plan, he sent for Napier to his house in Wales, and entrusted him with an order for a large paddle yacht. She was called the "Menai," and her owner was so much pleased with her that he built several yachts with Napier, continuing to do so till he was a very old man. Mr. Smith was a friend of the Duke of Wellington and other influential personages, and he was of great assistance to Napier in his early dealings with the British Government.

Having successfully overcome the difficulties of river navigation, Napier now turned his attention to Channel steamers. The first he engined was the "Eclipse," considered one of the finest vessels of her time. She was employed in the Belfast trade, and in her case double side lever engines were introduced and other improvements suitable for long distance steaming.

In 1828, to meet the growing requirements of the business, the Vulcan Foundry in Washington Street, where Mr. M'Arthur had previously worked, was acquired, and a few years later the establishment was increased by the addition of Lancefield Works.

Napier was now taking a prominent part in founding steamboat companies, and, among these, special mention may be made of the City of Glasgow Steam Packet Co., the kernel of the future Cunard Company.

About 1832 he contracted with the Dundee Shipping Co. for two steamers, the "Dundee" and "Perth." These vessels gave very great satisfaction on account of the regularity of the passages they made, and the finish of their hulls and engines, and through them a connection with London was established. As a direct result he was entrusted with an order from the Hon. East India Co., and built for them the "Berenice." She was his first ocean going steamer, and steamed to India *via* the Cape at the rate of 8 knots on 18 tons of coal per day.

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In 1833, convinced of the possibility of ocean navigation by steam, he gave a favourable opinion on a project for an Atlantic service, but the scheme fell through from want of funds. He subscribed liberally to the experimental voyage of the "Sirius," and in 1838 he began making for the British and North American Steam Navigation Co. the engines of the "British Queen." She was the largest vessel of her time, 275 ft. long and 40 ft. 6 in. beam, with engines of 500 N.H.P., and was so strongly built in her machinery space that when sold many years afterwards for breaking up purposes her dismantlers could not pull her to pieces.

The following year, 1839, was a memorable one in Napier's history. As already stated, he was interested in local companies and had worked for the East India Company. A friendship with Sir James Melvill, who was Secretary to the Company, had been formed, and this led to great results. Samuel Cunard was agent for the Company in Halifax, and having negotiated a contract for carrying mails across the Atlantic he came to England to arrange for the construction of suitable steamers.

Mr. Cunard asked Melvill for an introduction to a shipbuilder, and was informed that the most reliable man was Robert Napier. Shortly afterwards Cunard proceeded to Glasgow, and on 18th March, 1839, the contract for the first three Cunard steamers was signed, the sole contracting parties being Samuel Cunard and

Robert Napier. This historic document is in the possession of Miss Napier, London.

Cunard on his return to London informed the Admiralty and Treasury of his contract, and both were highly pleased with the size of the boats and other particulars. Napier, however, considering the size of the "British Queen" and her sister ship, the "President," was not satisfied with the Cunard boats, and accordingly wrote Cunard, pressing him to increase the dimensions. This the latter refused to do, and accordingly Napier started on the contract. Cunard, however, informed Sir James Melvill of what had passed, and of Napier's desire for larger vessels, and his refusal to fall in with Napier's ideas, adding that the Admiralty were satisfied. Melvill's reply was that, in his opinion, Napier's views must be adopted at all costs. Cunard thereupon stated that, personally, he had no funds for a larger venture, and that he had been unable to persuade others to join him in the manner he had hoped for. Melvill advised him to go again to Glasgow and explain the whole situation, as Napier was an influential man and might be able to help him. So Cunard went north again, and a meeting took place at Lancefield House at which the financial difficulty was explained. Napier was a promoter of the City of Glasgow Company, and it occurred to him that shareholders in channel steamers would be likely to become shareholders in an ocean venture, so he consulted

his friend and co-shareholder, Mr. Donaldson, who at once expressed his readiness to subscribe £16,000. After sounding his immediate friends, including Mr. David M'Iver, Napier approached the agents of a Company which had been running in opposition to the City of Glasgow Company.

The agency for the steamers had been offered by Cunard to Wm. Kidston & Sons, and declined by them, and Napier now suggested to George Burns that if he got his shareholders to join with the City of Glasgow shareholders and form a large company, he might obtain the agency. Burns fell in with this proposal, and on 30th April Napier was able to write Cunard :—"I saw MacIver and Burns. I was happy to learn you had got all your arrangements made with each other, at least, that you understood each other." Burns brought the scheme officially before Napier's friends and his own shareholders, and in a very short time, such was the magic power of Napier's name and the public confidence in his ability to perform anything he undertook, the whole sum aimed at, £270,000 stg., was subscribed. Napier was the practical head and hand of the Cunard Company in its early days, without which it might have proved a less successful venture in the vast field of enterprise it so long monopolised. Burns was appointed to the agency as arranged, though he only subscribed about £5,000 stg., and the management and efficient officering of the steamers were

entrusted to Napier's old friends, Messrs. David and Charles MacIver of Liverpool.

The first steamer, the "Britannia," arrived in Boston in July, 1840, after a passage of 14 days 8 hours, and she was followed a month later by the "Acadia," taking 12 days 18 hours. It may be remarked that in the early voyages the boats were not pressed, and a year later the "Britannia" covered the journey in 10 days.

In the meantime Napier made his first contract with the British Admiralty, and engined H.M.S. "Vesuvius" and "Stromboli." The prejudice against a Scotch contractor was strong, but Napier again justified his reputation. His work was so excellent that a comparison submitted to Parliament of the cost of repairs on his engines with that on engines made by English firms showed very much in his favour, and resulted in many additional orders.

Ocean liners were now a recognised fact, and as the difficulties connected with wooden vessels were increasing, Napier determined to add iron shipbuilding to his business. For this purpose he acquired ground in Dumbarton, but afterwards, resolving to have his yard at Govan, he sold the Dumbarton property to Messrs. Denny. The first iron vessel he built was the "Vanguard," launched on 29th June, 1843, and shortly afterwards he had the honour of being entrusted by the Admiralty with the first iron steamers for the Navy, launching H.M.S. "Jackal," "Bloodhound," and "Lizard,"

in 1844-1845. They were followed by H.M.S. "Simoon," a vessel of over 2,000 tons register, the first iron frigate in the Navy. She took over three years to build, and continued in the service for nearly forty years.

In the early fifties he made arrangements for working in what is now known as Govan Yard, admitted into partnership his two sons, and altered the style of the firm to Robert Napier & Sons.

It may be mentioned that Messrs. Thomson, who were foremen at Vulcan Works, left Napier in 1848, and founded the well-known firm of J. & G. Thomson, and that in 1852 John Elder, who occupied a prominent position with him, was admitted a partner, and formed the firm of Randolph, Elder & Co. There was an intimate connection between the Napier and Elder establishments. In later years Sir William Pearce left Napier to become ultimately the head of John Elder & Co., and, after Napier's death, Dr. Kirk, who was a Napier apprentice, left Elder's to acquire the business of Robert Napier & Sons.

When Napier had got his new yard equipped, one of his first orders was for the Cunard steamer "Persia." She was the first large steamer built on the Clyde, and, at the time, nothing afloat exceeded her dimensions.

The Admiralty hitherto had a prejudice against iron, but the bombardment of Sebastopol opened their eyes to some of its advantages, and, accordingly, ironclads were ordered in

great haste. Napier was one of the favoured contractors, and he built H.M.S. "Erebus," a vessel 186 ft. long, 48 ft. beam, clad with armour plates 4 in. thick. The penalty for late delivery was £1,000 a day, and the time allowed six months. The vessel was constructed with extraordinary expedition, and launched with machinery on board in the almost incredible time of three and a half months.

Napier had reached the allotted span of years when he was again called upon to bestir himself for his country's good. The Government commissioned him to build H.M.S. "Black Prince," one of the first sea-going ironclads Britain possessed. Her displacement was close on 10,000 tons, and her launch was considered an event warranting a public holiday in Glasgow. Thus late in life he opened a new avenue of fame, and he constructed many warships for the British, Turkish, Danish, and other navies. He executed about sixty contracts for the British Admiralty, the last being for H.M.S. "Northampton," which was building at the time of his death.

Napier had from small beginnings gradually worked up to a pinnacle of fame, occupying a pre-eminent position in the engineering world for over forty years. He had engined steamers for the Cunard, P. and O., Pacific, Royal Mail, Castle, and other leading companies, and had constructed machinery and warships for most of the European powers. The Emperor Napoleon recognised his merit by conferring on

[illegible]

Robert Taylor must be looked upon as a pioneer and patron of modern art and design. By his efforts a bridge was built, and wings are in flight, of his work the people again interested in art. Through Taylor good is passing to generations, the large institutions, headed by a new generation with him, are at the forefront of the art movement.

CHAPTER XVI

PETER DENNY

THE connection of the family of Denny with the business of shipbuilding in the Royal Burgh of Dumbarton dates from the earliest days of the last century, and the growth of the family as shipbuilders and engineers marches step by step with the successful application of steam power in the propulsion of vessels.

Peter Denny, LL.D., was born in Dumbarton on the Hallowe'en of 1821, and was the sixth son of William Denny, a well-known and much esteemed shipbuilder before him. His father came of a family of farmers, who, for several generations, farmed their own lands of Braehead and West Faulds, situated near what is now known as the Townend of Dumbarton.

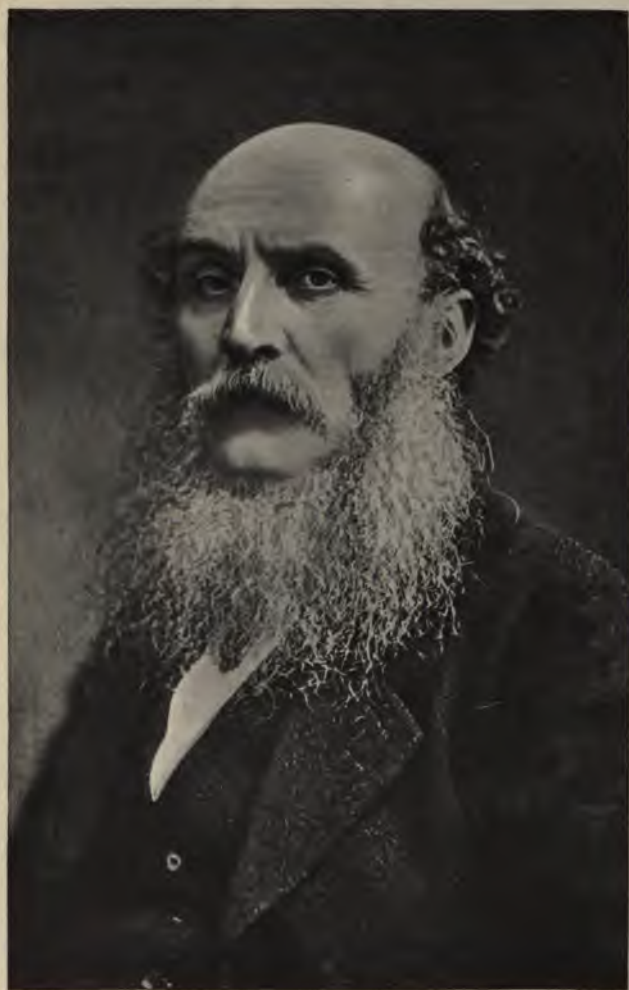
The premises occupied by the father were known as the Woodyard, and were situated on the west side of the River Leven, not far below the bridge. That yard William Denny, senior, had first worked in as a carpenter, then managed as a partner, and ultimately controlled as proprietor. The class of shipwork then done

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In the Leven was, however, of a very humble character, consisting, for the most part, of small wooden coasting smacks, schooners, and the like. Among vessels, however, which may be deemed historical, he built in 1814 the paddle steamer "Marjory," the first steam vessel that plied upon the Thames for hire, and in 1818 the "Rob Roy," a paddle steamer of 90 tons burthen, which was the first steamer constructed in Scotland for oversea purposes. This latter was engined by the celebrated David Napier.

William Denny (Peter's father) died in the year 1833, leaving a widow and eleven children. Peter was then only twelve years of age. Unfortunately at his death William Denny's affairs were found much involved, and very little means were left to his widow for the maintenance of the younger portion of the family. Peter remained at school in Dumbarton until his fourteenth year.

William Denny, senr., was succeeded in his business at the Woodyard by John Denny (his son), but he only survived him five years. James went to America, where he remained until the year 1847. Robert became a ship carpenter, and William and Alexander moved about from place to place wherever they could obtain employment. The fourth son, William, at an early age showed outstanding talent as a naval architect, and with his brother Alexander was for some years employed in designing iron steamers, and superintending their construction



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in Glasgow and Paisley. It was during this period that Peter Denny, after serving some years as a clerk in the Dumbarton Glass Works and elsewhere, joined his brothers William and Alexander, and became initiated into the duties of their drawing office as a draughtsman.

In 1842 William Denny had been engaged by Robert Napier as manager of his shipyard in Govan. This position he only held for a short time, when owing to difficulties which had arisen he threw up his position as manager and went to America. Peter having joined his brother William at Govan, retired with him and joined his brother Alexander at Paisley, where he was able to be of considerable use in preparing specifications, plans, etc. Alexander had a good knowledge of marine architecture, having gained much experience in assisting Scott Russell.

William Denny returned from America in 1844, and the three brothers, William, Alexander, and Peter, formed a partnership as marine architects in Glasgow, under the name of Denny Brothers, and were well employed. In the autumn of that year they determined to commence business in Dumbarton as iron ship-builders, having secured a lease of the shore ground below the parish churchyard, which at present forms a part of the yard of Messrs. Archibald MacMillan & Sons, Ltd. Their elder brother John had now been dead many years, and the old Woodyard was occupied by strangers, but it became vacant in 1847, and

was purchased by William Denny, and fitted with machinery, etc., for iron shipbuilding.

Their first contract was for a paddle-steamer named the "Lochlomond," of 95 tons and 70 nominal H.P. They also built the iron paddle-steamer "Rob Roy," of 30 tons and 15 H.P., and the screw-steamer "Water Witch," of 240 tons and 35 H.P. This latter vessel, destined for the Dublin and English trade, was the first mercantile screw-steamer built on the Clyde.

The reasons for the preference shown by the young firm for iron were probably twofold: first, as marine architects for several years previously they had designed and superintended the construction of nearly all the iron vessels built on the Clyde; and second, the intelligence and foresight of the brothers convinced them that the days of wood as a material for ships were fast coming to a close. To them it was evident that, with the advent of steam navigation, the iron ship must become a necessity if the capabilities of the marine engine were to have full scope for development. It was this clear vision and faith in the future of steamship building which made the reputation of the firm of Denny Brothers, and led to the unique and honoured position among British shipbuilders and engineers occupied by Peter Denny for many years before his death. The firm set its fortunes on steam, and throughout its whole career, during which time it has built some 734 vessels, it has produced only four sailing-ships.

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In 1846 James Denny returned from America and joined the enterprise ; and three years later the firm of Denny Brothers was dissolved by mutual consent, and Alexander retired from the business. The assets and liabilities of the firm were taken over by William, Peter, and James, and the new firm was started under the name of William Denny and Brothers, the designation retained to this day. Alexander started building in a small yard on the north side of the town, taking with him his brother Archibald, under the name of Alexander Denny and Brothers.

In 1850, the inconvenience of having to send the vessels to other places to be fitted with machinery being much felt, it was determined to start works for the manufacture of marine engines and boilers in Dumbarton. For this purpose Peter Denny formed a partnership with John Tulloch, engineer, of Greenock, and John M'Ausland, of Dumbarton, and built engine and boiler shops on ground which formed part of the site of the disused glass works, above Dumbarton Bridge. This firm assumed the name of Tulloch and Denny, and the designation remained till 1862, when it was changed to Denny and Company. The shops then erected formed the nucleus of the magnificent modern engine works possessed by the firm.

Having now the means of constructing iron steam vessels entirely within themselves, the firm soon advanced in favour with steamship owners, and its business largely increased.

The success of the firm kept pace with their increased accommodation. Important contracts were entered into with Messrs. G. and J. Burns and others in 1851 and 1852, and by the middle of 1854 65 vessels had been launched, several of which were 1,500 tons burthen and of 300 H.P. These figures in the light of the present time may seem trifling, such has been the advance on shipbuilding and engineering, but fifty years ago they were very considerable.

In the midst of its prosperity the firm was destined to receive a severe blow. On the 1st of July, 1854, William Denny, the senior partner and ruling spirit of the firm, died, after a very short illness.

Peter Denny felt keenly the loss of his brother William, and he describes his feelings in the following words:—

“A great calamity to me took place in the death of my brother William, aged 39. I was so depressed and disheartened that it needed all the encouragement of my friends to induce me to carry on the business, being so imperfectly qualified as to the technical and practical work, and having the necessity of the commercial department wholly upon myself.”

The chief management of the growing business now devolved upon Peter Denny, and though suffering under the loss of his brother, and in indifferent health, he carried it on, first in partnership with his brother James, but after

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the retiral of the latter in May, 1862, for some years as sole partner.

In 1863 Peter Denny, finding his position at the Woodyard (which remained the property of the trustees) somewhat irksome, and the terms of his lease not allowing sufficient scope for the extension necessitated by his increasing business, purchased ground further down the river, adjacent to Dumbarton Castle. In January, 1864, he entered into possession, and as the level of the ground was too low, he proceeded to fill it up to the required height. To do this the part nearest the town was excavated, and the soil transferred to the remaining part. This plan had the additional advantage of creating a dock or tidal basin in which vessels could receive their machinery and remain afloat until completion. In 1867, at the expiry of the lease of the Woodyard, the business of William Denny and Brothers was transferred to the new site. The business of Messrs Denny & Rankin ceasing at this time, a lease of their yard was secured, and it was incorporated with the firm's ground, the whole receiving the title of "The Leven Shipyard."

In the year 1846 Peter Denny was married to Helen, the eldest daughter of Mr. James Leslie, supervisor in the Inland Revenue service. Their family, surviving, consists of John, Peter, Archibald, and Leslie, besides two daughters. On William, the eldest son, coming of age, in the year 1868, he was taken into partnership with his father, and those two con-

stituted the firm of William Denny & Brothers until 1873, when Mr. Brock joined them. In January, 1881, Mr. Denny's son John and his nephew James became partners; in January, 1883, Peter and Archibald joined the firm; in February, 1885, Mr. John Ward, who had been general manager from 1877, was admitted a partner; and in 1895 Mr. Leslie Denny and Mr. H. W. Brock were admitted. The breadth of mind and clearness of prevision which characterised Peter Denny throughout his career were distinctly manifested in the choice of his managers, and in his linking them into the life and ambitions of the firm as partners. He had a great faith in the benefit arising from an infusion of new blood into the body over which he presided, and he always acted upon the principle that the best work is given by those who have a direct interest in results.

Peter Denny's eldest son, William, died in 1887, and the shock of that event had a permanent effect upon the health and vigour of Peter Denny himself.

In 1881 Denny purchased the Castle-green property lying along the shore and between the Leven Shipyard and the foot of the Castle rock. This was thrown into the yard, which now extended from the high road to the castle itself. The new ground was utilised to form a deep water dock in which their largest vessels could lie afloat at nearly all states of the tide. Prior to this extension of

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the yard, the largest vessels built had not exceeded 4,000 tons gross measurement, but shortly afterwards a few of 4,700 and 5,000 tons were built.

The building yard in its present state, including the water area of the floating docks, covers about 42 acres. Of this area about 9 acres are occupied by workshops, sheds, and other roofed spaces. The building berths give accommodation for laying down eight vessels, of a length ranging from 750 feet downwards, while the interior of the yard affords space for building river steamers and other light draught vessels for export. The vessels are there framed, plated, and fitted with the requisite gear; when complete they are taken down, marked, and packed ready for transport.

Branch lines from the North British and Caledonian Railway systems provide for the delivery of all material at the sheds in which it is to be worked. These lines run throughout the whole length of the yard. In addition there are about eight miles of "Decauville" narrow gauge portable railway, which largely contribute to speed and economy of transit within the yard. The whole of the works are served by an elaborate telephonic system, in connection with which is a signalling arrangement whereby any of the officials or foremen can be promptly brought to a telephone box in order to communicate with the offices. The works have also a complete installation of electric lighting, and hydraulic

and electrical power are conveyed throughout their entire extent.

One of the most interesting features is the experimental tank, constructed upon the lines of that of the late William Froude at Torquay. Its value to the firm in making close calculations of the H.P. required in propelling steam vessels of all classes can hardly be over-estimated, and the large expenditure involved in its formation, maintenance, and working, has been amply repaid by the success which has attended its use.

Peter Denny, aided by his sons and other partners, aimed at and practically succeeded in making Dumbarton sufficient in itself for all the components of a steamship without having recourse to outside assistance. The Dennystoun Forge and Levenbank Foundry are largely owned and controlled by Denny Brothers, and in their own shipyard the firm employs a competent staff of artist designers, decorators, glass stainers, upholsterers, carvers, and cabinet-makers. They also supply the electric installations to the steamers they build. Further, in 1847 the Dumbarton shipyards employed only about 400 workmen; by the year 1870 the number had increased to 2,800, and at the present time the shipyard and engine works of Messrs. Denny and Company alone, together with their forge and foundry, give employment to no less than 4,000 men, women, and girls. The gentler sex are chiefly occupied as tracers in the drawing offices and in the

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upholstery, stained glass, and French polishing departments. The firm reserve apprenticeships for the sons of their own workmen.

Peter Denny's eminent practical acquaintance with shipbuilding was recognised by the British Government in 1871, when they appointed him a member of the Committee on Designs for Ships of War, and a member of the Royal Commission which held two sessions in 1873-1874 to inquire into the causes of the loss of life and property at sea. Among other honours conferred upon him he received from the Spanish Government the Knighthood of the Ancient Order of Isabella in recognition of valuable services rendered to that kingdom. For similar reasons the Portuguese Government created him a Knight of the Illustrious Order of Jesus Christ. And in April, 1890, he was the subject of a most gratifying honour, having conferred upon him the degree of Doctor of Laws and Literature by the University of Glasgow. Further, Mr. H. M. Stanley, the explorer, named a mountain in Africa "Mount Denny" after his friend, the Dumbarton shipbuilder. All these honours conferred upon Mr. Denny were appreciated by his townsmen, for he was held in the highest esteem by them all.

Although busily engaged in shipbuilding, Peter Denny had time to spare to the municipal life of the town. He was elected Provost of the burgh in 1851, and occupied that position for three years, during which time he was

chiefly instrumental in initiating the excellent water scheme by which Dumbarton is now supplied. In 1865, before the days of Board Schools, he erected in the town a commodious school for the gratuitous teaching of the lads employed in the shipbuilding, engineering, and boiler works of the firm. The condition of employment was compulsory attendance at this school. Again, in combination with the late Mr. John MacMillan, in the year 1885, he gifted to the town of Dumbarton the Levensgrove Public Park, which was laid out with great taste, and which cost the donors considerably over £20,000. Nor did this exhaust his generosity to his native town. In May, 1890, Denny presented to Dumbarton the ample area of Knoxland Square, including a handsome bandstand, from which musical performances are from time to time given during the summer. This gift was the occasion of a great public demonstration, at which the square was formally handed over to Provost Baptie on behalf of the community, and Mr. Denny received an illuminated address enclosed in a silver-gilt casket.

In 1894, the jubilee year of William Denny and Brothers, a grand function was held in the spacious machinery shed of the Leven Shipyard. A large company assembled in honour of the event, and an interesting feature of the proceedings was the presentation to Dr. Denny of an illuminated address and an album containing signatures of the leading workmen in the employment of the firm. Mrs. Denny was at

the same time the recipient of a costly solid silver salver suitably inscribed.

A year later, on 22nd of August, 1895, Peter Denny died. A bronze statue by Thorneycroft was erected to his memory, by a public subscription, in front of the new Municipal Buildings, Dumbarton.

In unveiling it Lord Overtoun took occasion to say that it might be said of Denny as of the famous architect of St. Paul's, '*Si monumentum quæris, circumspice*' (if you wish a monument, look around). For when we look at the building up and prosperity of Dumbarton, Peter Denny does not require any other monument.

Mr. Denny at his decease was a Vice-President of the Institution of Naval Architects; an ex-President of the Institution of Marine Engineers; a member of the Institution of Engineers and Shipbuilders in Scotland; a member of the Institution of Civil Engineers, and an LL.D. of Glasgow University.

In 1901, in co-operation with Mr. Parsons, the inventor of the marine turbines, the firm of Denny Brothers built and took an interest in the first passenger steamer fitted with turbines, namely, the "King Edward." So successful was she on service that the following year a larger and speedier turbine steamer, the "Queen Alexandra," was commissioned from them for the same service and owners. Last year, for the South-Eastern and Chatham Railway Company's cross channel service between Dover

and Calais, they built the turbine steamer "The Queen," and for the London, Brighton and South Coast's channel service between Newhaven and Dieppe, the turbine steamer "Brighton."

With the advent of these turbine steamers, a revolution in steam propulsion has been begun, the end of which no man can foresee. Already the Allan Line have under construction two large ocean-going turbine steamers for their Canadian Mail service ; and it is more than likely that the latest and largest greyhounds for the Atlantic service of the Cunard Company will also be turbines.

In Leven shipyard there are at present seven high-speed turbine steamers being built, two of them for cross channel service, and five of them for ocean navigation.

THE GREAT PASSENGER STEAMERS



MAP OF STEAMSHIP ROUTE

List of Steamers

from the

‘Comet,’ 1812, to the ‘King Edward,’ 1901

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Name of Steamer.	Year.	Builders of Hull.	Makers of Machinery.	Description and Principal Dimensions of Hull.			
				Type.	Length B.P.	Beam.	Depth Moulded.
1. Comet, - - -	1812	John Wood, Port-Glasgow,	John Robertson,	Wood	43' 6"	11' 4"	5' 9"
2. Elizabeth, - - -	1812	do.,	John Thomson,	do.	57'	12'	—
3. Clyde, - - -	1813	do.,	John Robertson,	do.	68'	14'	—
4. Glasgow, - - -	1813	do.,	Anderson & Campbell, Greenock, Re-engined by Jas. Cook, Glasgow,	do.	73' 4"	14' 10"	9' 1"
5. Trusty, - - -	1814	M'Lachlan, Dumbarton,	Dobbie, - - -	do.	68' 4"	17' 6"	6'
6. Industry, - - -	1814	Fyfe, Fairlie, -	Dobbie, Re-engined by Caird & Co., 1828,	do.	66 ⁸ / ₁₆	14 ⁷ / ₈	8 ¹ / ₈
7. Morning Star, -	1814	John Wood, Port-Glasgow,	John Robertson,	do.	—	—	—
8. Inveraray Castle, -	1814	do.,	—	do.	84'	17'	—
9. Princess Charlotte	1814	James Munn, Greenock,	Boulton & Watt,	do.	65'	10'	—
10. Duke of Argyle, -	1814	Martin, Port-Glasgow,	Jas. Cook, - -	do.	72'	14' 6"	—
11. Prince of Orange, -	1814	James Munn, Greenock,	Boulton & Watt,	do.	64'	12'	—
12. Margery, - - -	1814	Arch. M'Lachlan,	Jas. Cook, Glasgow,	do.	68'	12'	5' 6"
13. Oscar, - - -	1814	J. Smart, Dundee,	John Robertson,	do.	75' 3"	13' 3"	7' 5"
14. Britannia, - - -	1815	John Hunter, Port-Glasgow,	D. M'Arthur & Co.,	do.	93' 4"	16' 5"	8' 8"
15. Dumbarton Castle,	1815	Arch. M'Lachlan,	do.,	do.	87'	16' 6"	7' 9"
16. Caledonia, - - -	1815	J. & C. Wood, Port-Glasgow,	Greenhead Foundry,	do.	94'	15'	8' 6"
17. Greenock, - - -	1815	Arch. M'Lachlan & Co.,	D. M'Arthur, -	do.	85' 3"	16'	7' 10"
18. Lady of the Lake,	1815	—	R. Napier, -	do.	70' 4"	16' 3"	8' 10"
19. Argyle, - - -	1815	John Wood, -	Greenhead Foundry,	do.	91' 1"	15' 6"	10'
20. Waterloo, - - -	1816	John Hunter, -	Jas. Cook, - -	do.	72'	16'	—
21. Neptune, - - -	1816	John & Chas. Wood,	D. M'Arthur, -	do.	87' 4"	15' 6"	9' 10"
22. Lord Nelson, -	1816	John Wood, -	Greenhead Foundry,	do.	71'	16'	—
23. Albion, - - -	1816	do.,	Jas. Cook, - -	do.	84' 11"	16' 1"	10'
24. Rothesay Castle, -	1816	A. M'Lachlan, -	D. M'Arthur, -	do.	92' 11"	16' 1"	8' 10"
25. Marion, - - -	1816	do.,	D. Napier, -	do.	60'	18'	—

FROM 'COMET' TO 'KING EDWARD' 349

Ton- nage.	Machinery.			Owners.	Master.	Trade.
	Type.	N.H.P.	Boilers.			
24 $\frac{5}{8}$ $\frac{1}{2}$	Single upright cylinder, 12" x 18", half side levers,	4	Low pressure, fired externally,	Henry Bell, -	W. M'Kenzie, -	Glasgow, Rothesay and Inverness
30	—	8	—	—	—	Greenock
65	—	12	1 cylinder, 22" x 24",	—	Wm. M'Kenzie, Cook,	Greenock
52 $\frac{1}{8}$ $\frac{1}{4}$	—	14	—	—	W. M'Intyre, -	Largs
61 $\frac{5}{8}$ $\frac{1}{4}$	—	10	—	—	A. M'Taggart, -	Greenock
52 $\frac{9}{16}$ $\frac{1}{10}$	Side lever, cylr., 23" x 32", wheels 11" dia.,	14	1 flue, -	John Henderson, Wm. Croil, Dugald M'Phee,	—	Greenock
—	—	—	—	—	Taylor, -	—
112	—	40	—	—	Dugald Thomson, D. M'Arthur, Duncan, -	Glasgow & LochFyne
50	2 cylinders, 8",	—	—	—	—	—
78	2 engines, -	14	—	—	Dick, -	—
50	2 cylinders, -	8	—	—	M'Innes, -	—
38 $\frac{7}{8}$ $\frac{1}{4}$	—	10	—	—	—	—
43 $\frac{1}{2}$ $\frac{1}{4}$	—	—	—	A. Dow, -	Peter Graham, -	Glasgow & Loch Goil. Established 1818
73 $\frac{3}{8}$ $\frac{1}{2}$	—	32	—	—	D. Wyse, -	Rothesay & Campbeltown
108	2 engines, -	30	—	—	Jas. Johnstone, T. Buckley, -	LochFyne
94 $\frac{3}{8}$ $\frac{1}{4}$	2 engines, -	36	—	—	—	—
98 $\frac{1}{8}$ $\frac{1}{4}$	2 engines, -	32	—	—	P. Galbreath, -	—
83 $\frac{3}{8}$ $\frac{1}{4}$	—	—	—	—	J. Kincaid, -	—
72 $\frac{3}{8}$ $\frac{1}{4}$	1 engine, -	—	—	G. Brown, - T. Buchanan,	Dan. M'Arthur, -	—
90	—	20	—	—	Muirhead, -	—
70 $\frac{3}{8}$ $\frac{1}{4}$	—	20	—	T. Kirkwood, Lorimer Corbett, J. Miller,	Leitch, -	—
93	—	20	—	—	Carswell, -	—
68 $\frac{3}{8}$ $\frac{1}{4}$	—	20	—	—	John Kay, -	Glasgow & Largs
74 $\frac{3}{8}$ $\frac{1}{4}$	—	34	—	—	D. Brown, -	Glasgow & Rothesay
57	—	20	—	—	—	Glasgow & Greenock

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Name of Steamer.	Year.	Builders of Hull.	Makers of Machinery.	Description and Principal Dimensions of Hull.			
				Type.	Length B.P.	Beam.	Depth Moulded.
26. Margaret, - -	1816	Sharp, Dundee, -	John Robertson, -	Wood	55'	14'	—
27. Duke of Wellington	1817	A. M'Lachlan, -	D. M'Arthur & Co., -	do.	77' 4"	14' 10"	5' 5"
28. Defiance, - -	1817	John Wood, -	John Robertson, -	do.	54'	15'	—
29. Woodford, - -	1818	W. Denny, -	—	do.	71'	16' 5½"	8' 6"
30. Marquis of Bute, -	1818	John Wood, -	John Robertson, -	do.	55'	14'	—
31. Greenock No. 2, -	1818	do., -	D. M'Arthur & Co., -	do.	70'	15'	—
32. Rob Roy, - -	1818	Wm. Denny, -	—	do.	80' 11"	15' ¾"	9'
33. Robert Burns, -	1819	John Wood, -	D. Napier, -	do.	70'	14'	—
34. Talbot, - -	1819	do., -	do., -	do.	92'	18'	—
35. Fort-Glasgow, -	1819	do., -	Murdoch & Cross, -	do.	76'	14'	—
36. Fingal, - -	1819	W. Denny, -	Jas. Cook, -	do.	62'	15'	—
37. Robert Bruce, -	1819	Scott & Sons, -	D. Napier, -	do.	94'	18' ⅞"	11'
38. Waterloo No. 2, -	1819	do., -	Jas. Cook, -	do.	100'	17'	—
39. Sampson, - -	1819	W. Denny, -	D. M'Arthur, -	do.	82'	16' 11"	8' 6"
40. Dumbarton, - -	1820	do., -	M'Arthur, -	do.	88' 6"	14' 1"	7' 9"
41. Post Boy, - -	1820	do., -	D. Napier, -	do.	74'	13'	—
42. Inveraray Castle No. 2, -	1820	John Wood, -	—	do.	95' 6"	16'	9' 5"
43. Eclipse, - -	1821	Steel, Greenock, -	D. Napier, -	do.	104'	16' 9"	9' 10"
44. Comet No. 2, -	1821	James Lang, Dumbarton, -	D. M'Arthur & Co., -	do.	—	—	—
45. Ayr, - -	1821	John Wood, -	Neilson, -	do.	88'	16'	—
46. James Watt, - -	1822	do., -	Boulton & Watt, -	do.	124'	24'	—
47. Toward Castle, -	1822	J. Lang & W. Denny, -	D. M'Arthur, -	do.	101' 10"	16' 8½"	9'
48. Largs, - -	1822	John Wood, -	—	do.	91' 9"	17'	9'
49. Leven, - -	1823	W. Denny, -	R. Napier, -	do.	80'	16'	—
50. Favourite, - -	1824	John Denny, -	—	do.	70' ⅞"	15' ⅞"	7' ⅞"
51. Ben Nevis, - -	1824	J. Lang, -	—	do.	82' 9"	18' 3"	9' 2"
52. Commerce, - -	1824	do., -	—	do.	74' ⅞"	15' ⅞"	7' ⅞"
53. George Canning, -	1824	do., -	—	do.	99' ⅞"	15' ⅞"	7' ⅞"
54. Sovereign, - -	1824	do., -	Girdwood, -	do.	92' 9"	16'	8' 8"
55. St. Catherine, -	1825	John Wood, -	Neilson, -	do.	94'	16' 4"	—
56. Helensburgh, -	1825	W. Denny, -	R. Napier, -	do.	100' 3"	16' 2"	8' 7½"
57. James Ewing, -	1825	J. Lang & Denny, Dumbarton, -	D. Napier, -	do.	101'	16' 1"	8' 2"

Ton. nage.	Machinery.			Owners.	Master.	Trade.
	Type.	N.H.P.	Boilers.			
54	—	12	—	—	—	—
53 $\frac{3}{4}$	—	16	—	—	D. Beith, - M'Kinlay, -	—
51	—	12	—	—	—	Glasgow & Loch Goll
82 $\frac{7}{8}$	—	—	—	—	J. Holliday, -	—
53	—	14	—	—	—	—
62	2 engines, -	10	—	—	—	—
87 $\frac{1}{4}$	—	—	—	J. D. Napier, -	A. Smith, -	—
66	—	20	—	—	—	—
150	2 engines, -	60	—	—	—	—
84	—	16	—	—	—	—
67	2 engines, -	16	—	—	—	—
90 $\frac{1}{4}$	2 engines, -	60	—	—	J. Paterson, -	—
200	2 engines, -	60	—	—	—	—
53 $\frac{1}{2}$	2 engines, -	40	—	Wm. Croil, - John Robertson, Robt. Davidson, - Thos. Barclay,	J. M'Kellar, -	—
50 $\frac{1}{2}$	—	42	—	—	John Hunter, -	Glasgow & Dum- barton
65	—	20	—	—	—	Glasgow & Greenock
70 $\frac{3}{4}$	Single beam, -	40	2 copper flue boilers,	—	Dug. Thomson,	Glasgow & LochFyne
87 $\frac{1}{2}$	—	60	—	D. Napier, -	J. Dalzell,	—
94	—	25	—	—	M'Innes, -	Glasgow & Inverness
—	—	60	—	—	M'Clelland, -	—
—	—	100	—	—	—	Glasgow & Greenock
79 $\frac{3}{4}$	—	45	—	—	John M'Coll, -	Glasgow & LochFyne
82 $\frac{1}{2}$	—	36	—	—	J. Kay, -	Glasgow, Large & Millport
54	Side lever, -	33	—	—	—	Glasgow & Dum- barton
40 $\frac{5}{8}$	—	—	—	John Mitchell, John Neill, Alex. Drysdale,	Norman Jamie- son,	—
44 $\frac{1}{4}$	—	—	—	—	R. Bain, -	Glasgow & Inverness
43 $\frac{7}{8}$	—	—	—	John Mitchell, John Neill, Alex. Drysdale, H. Price, -	John M'Kinnon,	—
80 $\frac{1}{4}$	—	—	—	—	Wm. M'Kenzie.	—
68 $\frac{1}{2}$	—	36	—	J. Henderson, - A. M'Kellar,	J. Henderson, -	Glasgow & Gareloch
—	—	34	—	—	P. Graham, -	Glasgow & Loch Goll
81 $\frac{3}{4}$	Side lever, -	52	—	—	A. M'Leod, -	Glasgow & Helens- burgh
77 $\frac{3}{4}$	—	35	—	D. Napier, -	W. M'Kenzie, -	Glasgow & Rothesay

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Name of Steamer.	Year.	Builders of Hull.	Makers of Machinery.	Description and Principal Dimensions of Hull.			
				Type.	Length B.F.	Beam.	Depth Moulded.
58. Ben Lomond, -	1825	Lang, - - -	R. Napier, -	Wood	90' 11"	18'	8'
59. Countess of Glasgow, -	1825	J. Scott & Sons, -	—	do.	100'	17' 7"	8' 5"
60. Caledonia No. 2, -	1826	W. Denny, - -	—	do.	84'	14'	—
61. Eclipse No. 2, -	1826	J. Lang, - - -	R. Napier, -	do.	108 $\frac{1}{8}$ '	18 $\frac{3}{8}$ '	11'
62. Sir John Moore, -	1826	J. Lang & Denny, Dumbarton,	Murdoch & Cross,	do.	103' 7"	16' 6 $\frac{1}{2}$ "	8' 8 $\frac{1}{2}$ "
63. St. George, - -	1826	J. H. Ritchie & John Wood,	Neilson, - -	do.	101'	16' 11"	8' 4"
64. Dunoon Castle, -	1826	Denny, - - -	M'Arthur, -	do.	107' 4"	18'	8' 6"
65. Clarence, - - -	1827	Denny, Dumbarton,	R. Napier, -	do.	92'	16'	—
66. Venus, - - -	1827	J. Barclay & John Wood,	D. Napier, -	do.	111' 3"	16'	9' 9"
67. Cupid, - - -	1828	John Wood, - -	do.,	do.	58' 3"	11'	7' 3"
68. Sultan, - - -	1828	J. Lang, - - -	R. Napier, -	do.	97' 6"	15' 7 $\frac{1}{2}$ "	8' 5"
69. New Dumbarton, -	1828	Denny, - - -	do.,	do.	92 $\frac{1}{8}$ '	14 $\frac{1}{8}$ '	7 $\frac{9}{16}$ '
70. Ardencaple, - -	1828	J. Lang & Denny, Dumbarton,	do.,	do.	97' 9"	16' 8"	9'
71. Waverley, - - -	1828	J. Lang, - - -	Murdoch & Cross,	do.	89' 4"	13' 2"	8'
72. Loch Eck, - - -	1829	John Wood, - -	D. Napier, -	do.	81' 9"	12' 4"	7' 1"
73. Superb, - - -	1830	J. Lang & Wm. Denny,	—	do.	108' 8"	15' 4 $\frac{1}{2}$ "	8' 2 $\frac{1}{2}$ "
74. Arran Castle, -	1830	John Wood, - -	R. Napier, -	do.	108' 9"	16'	8' 8"
75. Greenock, No. 3, -	1830	W. Denny & Sons,	do.,	do.	102' 3"	15' 4 $\frac{1}{2}$ "	8' 4"
76. St. Mun, - - -	1831	Denny, Dumbarton,	D. Napier, -	do.	114' 3"	14' 10"	8' 3"
77. Rothesay, - - -	1831	Jas. Lang, - -	do.,	do.	96'	16'	11' 2"
78. Fairy Queen, -	1831	John Neilson, -	—	Iron	97'	11 $\frac{5}{16}$ '	8' 2"
79. Gleniffer, - - -	1831	—	—	—	—	—	—
80. Windsor Castle, -	1832	John Wood, - -	R. Napier, -	Wood	110' 1"	16'	9' 9"
81. Apollo, - - -	1832	Hunter & Dow, -	—	—	131' 2"	16' 1 $\frac{1}{2}$ "	9' 1"

FROM 'COMET' TO 'KING EDWARD' 353

Machinery.			Owners.	Master.	Trade.
Type.	N.H.P.	Boilers.			
—	35	—	—	Peter Turner, -	—
—	—	—	—	W. M'Intyre, -	Glasgow, Largs, Millport and Ayr
—	32	—	—	Jas. White, -	Glasgow & Helensburgh
—	—	—	—	J. Dalzell, -	—
—	50	—	—	P. Hamilton, -	—
—	48	—	—	Peter Graham, -	Glasgow & Loch Goll
—	55	—	—	Jas. Johnstone, -	Glasgow, Rothesay and Loch Fyne
—	45	—	—	Turner, -	Glasgow & Gareloch
—	70	—	D. Napier, -	Wm. Hall, -	Glasgow & Kilmun
—	10	—	do.,	J. Thomson, -	Dunoon & Kilmun
—	—	—	J. Henderson, -	Jas. Henderson, -	Glasgow & Gareloch
—	45	—	A. M'Kellar, -	M'Leod, -	Glasgow & Dumbarton
—	45	—	—	T. Brown, -	Glasgow & Gareloch
—	36	—	R. Douglas, -	Robt. Douglas, -	—
—	30	—	—	R. Hunter, -	Glasgow & Kilmun
—	—	—	Wm. M'Kenzie, -	Wm. M'Kenzie, -	Glasgow & Rothesay
—	50	—	Wm. Watson, Andrew King, John Blackie, -	J. Johnstone, -	Glasgow & Rothesay
—	50	—	J. Henderson, A. M'Kellar, D. Napier, -	J. Henderson, -	Glasgow & Gareloch
—	60	—	—	R. Hunter, -	Glasgow & Kilmun
—	—	—	J. M'Kinnon, -	—	—
Oscillating, -	—	—	J. Neilson, -	L. M'Lellan, -	Glasgow, Largs & Millport
—	—	—	—	Robertson, -	Glasgow, Largs & Millport
—	55	—	John Watson, Andrew King, A. Miller, Wingate & Co., -	—	—
—	—	—	—	Stewart Boyd, -	Glasgow, Largs, Millport and Ayr

354 THE CLYDE PASSENGER STEAMER

Name of Steamer.	Year.	Builders of Hull.	Makers of Machinery.	Description and Principal Dimensions of Hull.			
				Type.	Length B.P.	Beam.	Depth Moulded.
82. Inverness, - -	1832	Robt. Barclay, -	—	—	82' 6"	12' 10"	8' 9"
83. Hero, - - -	1832	Denny, - -	R. Napier, - -	Wood	98' 5"	15' 1"	8' 3"
84. Dumbuck, - -	1832	John Wood, - -	—	—	99 $\frac{6}{10}$ '	11 $\frac{2}{10}$ '	7 $\frac{3}{10}$ '
85. Earl Grey, - -	1832	R. Duncan & Co.,	—	Wood	120' 3"	16'	8' 6"
86. Alert, - - -	1833	Jas. Lang, Dumbarton,	—	do.	61 $\frac{5}{10}$ '	14 $\frac{2}{10}$ '	8'
87. Kilmun, - - -	1834	D. Napier, - -	D. Napier, - -	do.	120' 6"	16'	8' 6"
88. Nimrod, - - -	1834	John Wood, - -	Caird & Co., -	do.	109' 4"	16' 9"	9' 5"
89. Rob Roy, - - -	1834	R. Duncan & Co.,	—	do.	83' 3"	12' 11"	9' 3"
90. James Oswald, -	1834	J. Scott & Sons, -	—	do.	101' 8"	14' 9"	8' 4"
91. Albion, - - -	1834	—	—	do.	115' 5"	16' 3"	10' 3"
92. Dolphin, - - -	1834	J. Lang, - -	Caird & Co., -	Iron	96' 9"	16' 4"	8' 6"
93. Benledi, - - -	1834	R. Barclay, - -	—	Wood	112'	18' 2"	9' 10"
94. Northern Yacht, -	1835	do.,	R. Napier, - -	—	116' 7"	16' 8"	9' 2"
95. Jas. Dennistoun,	1835	Hunter & Dow, -	do.,	—	107' 8"	15' 11"	9' 2"
96. Loch Goll, - - -	1835	Tod & M'Gregor, -	do.,	Wood	—	—	—
97. James Watt, - -	1835	—	—	—	79 $\frac{4}{10}$ '	16 $\frac{8}{10}$ '	8 $\frac{7}{10}$ '
98. St. Mungo, - - -	1835	R. Duncan & Co.,	Murdoch, Aitken & Co.,	—	166' 6"	17'	10' 2"
99. Isle of Bute, - -	1835	John Wood, - -	R. Napier, - -	Wood	109 $\frac{9}{10}$ '	15 $\frac{2}{10}$ '	8 $\frac{6}{10}$ '
100. Maid of Bute, - -	1835	do.,	do.,	do.	110 $\frac{3}{10}$ '	15 $\frac{4}{10}$ '	8 $\frac{4}{10}$ '
101. Helen M'Gregor,	1835	Robt. Duncan, -	Murdoch & Aitken,	do.	82'	13' 11"	10' 2"
102. Vale of Leven, -	1836	Tod & M'Gregor,	R. Napier, - -	—	—	—	—
103. Brenda, - - -	1836	A. Macfarlane, Jr., & Co.,	J. & W. Napier,	Wood	123 $\frac{6}{10}$ '	16'	9'
104. Royal Tar, - - -	1836	Tod & M'Gregor,	Tod & M'Gregor,	—	125 $\frac{7}{10}$ '	16 $\frac{6}{10}$ '	8 $\frac{8}{10}$ '
105. Express, - - -	1836	R. Barclay & Co.,	—	—	130 $\frac{4}{10}$ '	16 $\frac{4}{10}$ '	8 $\frac{4}{10}$ '
106. Maid of Arran, -	1836	John Wood, - -	R. Napier, - -	Wood	94'	17'	—

FROM 'COMET' TO 'KING EDWARD' 355

Ton- nage.	Machinery.			Owners.	Master.	Trade.
	Type.	N.H.P.	Boilers.			
43 $\frac{3}{4}$	—	—	—	George Smith, - Jas. Melvin, Peter Turner, W. Young, D. M'Kellar, -	Peter Turner, -	—
68 $\frac{3}{4}$	—	37	—	Jno. Burns Mac- Brayne, Jno. M'Indoe, D. Napier, -	D. M'Kellar, - Alex. Lang, -	Glasgow & Millport Glasgow & Dum- barton Glasgow & Rothesay
39 $\frac{2}{100}$	—	—	—	John Mitchell, John Neill, Alex. Drysdale, D. Napier, -	Henry Hossack,	—
104 $\frac{7}{4}$	—	—	—	—	R. Wallace, -	Glasgow & Kilmun
44 $\frac{1}{100}$	—	—	—	Currie & J. Clark,	Currie, -	Largs, Millport and Ayr
102 $\frac{3}{4}$	—	20	—	W. Young, -	P. Turner, -	—
96 $\frac{3}{4}$	—	70	—	J. Stevenson, -	Jas. Whyte, -	—
42 $\frac{1}{4}$	—	—	—	—	—	Glasgow & Arran
67 $\frac{3}{4}$	—	—	—	—	J. Campbell, -	Glasgow & LochFyne
64	—	60	—	T. & R. Barclay, -	J. Hunter, -	Largs and Millport
73 $\frac{3}{4}$	—	45	—	do.,	John Leitch, -	Glasgow & Millport
115 $\frac{3}{4}$	—	—	—	J. Stevenson, -	John Hunter, -	Glasgow, Largs & Millport
99 $\frac{1}{4}$	—	—	—	H. Price, A. Tennant, Loch Goll Co., -	P. Graham, -	Glasgow & Loch Goll
87 $\frac{1}{4}$	—	—	—	John Henderson, Wm. Croil, Dugald M'Phee, W. Young, -	Alex. Leitch, - W. Young, -	—
44 $\frac{8}{100}$	—	—	—	—	—	—
108 $\frac{3}{4}$	Steeple, -	—	Flue, -	Bute Steam Pkt. Co., Bute Steam Pkt. Co., G. Burns, - W. Young,	J. M'Kinlay, - J. Johnstone, - Jno. Macpherson	Glasgow & Rothesay Glasgow & Rothesay Glasgow & Inverness
112	Double steeple, -	—	—	—	—	Glasgow & Dumbar- ton
107 $\frac{9}{100}$	—	100	—	R. Napier, -	A. M'Leod, -	Glasgow & Gareloch
78 $\frac{9}{100}$	—	—	—	J. Henderson, A. M'Kellar, Hugh Price, Colin M'Gregor, Robt. Watson,	J. Henderson, - Robert Watson,	Glasgow & Gareloch
89 $\frac{2}{100}$	—	—	—	—	—	—
—	—	60	—	—	—	Lamlash

356 THE CLYDE PASSENGER STEAMER

Name of Steamer.	Year.	Builders of Hull.	Makers of Machinery.	Description and Principal Dimensions of Hull.			
				Type.	Length B.P.	Beam.	Depth Mould. ed.
107. Tarbert Castle, -	1836	Wood & Mills, -	—	Wood	122 $\frac{2}{10}$ '	18 $\frac{0}{10}$ '	10'
108. Victor, - -	1836	Hunter & Dow, -	—	do.	109 $\frac{8}{10}$ '	13 $\frac{1}{10}$ '	8 $\frac{2}{10}$ '
109. Luna, - - -	1837	J. & W. Napier, -	—	do.	108 $\frac{4}{10}$ '	14 $\frac{5}{10}$ '	7 $\frac{4}{10}$ '
110. Grand Turk, -	1837	R. Duncan & Co.,	Murdoch, Aitken & Co.,	—	135 $\frac{2}{10}$ '	20 $\frac{2}{10}$ '	13'
111. Rothesay Castle,	1837	Tod & M'Gregor,	—	Iron	133 $\frac{5}{10}$ '	17'	8 $\frac{5}{10}$ '
112. British Queen, -	1838	T. Wingate & Co.,	—	—	125 $\frac{4}{10}$ '	16 $\frac{5}{10}$ '	8 $\frac{5}{10}$ '
113. Argyle, - - -	1838	Robert Duncan, Greenock,	—	—	118 $\frac{7}{10}$ '	18 $\frac{5}{10}$ '	9 $\frac{1}{10}$ '
114. Loch Lomond, -	1838	—	—	Wood	—	—	—
115. Royal Victoria, -	1838	Barr & M'Nab, -	—	—	106 $\frac{8}{10}$ '	13 $\frac{2}{10}$ '	7 $\frac{3}{10}$ '
116. Robert Burns, -	1838	R. Duncan & Co.,	D. Napier, - -	Wood	132 $\frac{1}{10}$ '	19 $\frac{4}{10}$ '	10 $\frac{1}{10}$ '
117. Sir Wm. Wallace,	1838	—	—	—	—	—	—
118. Windsor Castle, -	1838	Tod & M'Gregor,	Tod & M'Gregor,	Iron	128 $\frac{0}{10}$ '	16 $\frac{5}{10}$ '	8'
119. British Queen, -	1838	T. Wingate & Co.,	Wingate, - -	—	125 $\frac{4}{10}$ '	16 $\frac{5}{10}$ '	8 $\frac{5}{10}$ '
120. Queen, - - -	1838	Tod & M'Gregor,	—	—	90 $\frac{5}{10}$ '	13 $\frac{4}{10}$ '	6 $\frac{5}{10}$ '
121. Maid of Erin, -	1839	do.,	Tod & M'Gregor,	—	104 $\frac{1}{10}$ '	15 $\frac{0}{10}$ '	6 $\frac{4}{10}$ '
122. Ayrshire Lass, -	1839	Robt. Duncan, -	Wingate, - -	Wood	123 $\frac{8}{10}$ '	18 $\frac{1}{10}$ '	8 $\frac{1}{10}$ '
123. Shandon, - - -	1839	John Wood, -	R. Napier, - -	do.	134 $\frac{0}{10}$ '	16 $\frac{2}{10}$ '	9 $\frac{1}{10}$ '
124. Paisley, - - -	1839	—	—	do.	—	—	—
125. Inveraray Castle,	1839	Tod & M'Gregor,	Tod & M'Gregor,	Iron	136 $\frac{1}{10}$ '	19 $\frac{4}{10}$ '	8 $\frac{5}{10}$ '
126. Superb, - - -	1839	J. Lang, - - -	R. Napier, - -	Wood	122'	20'	8' 2"
127. Warrior, - - -	1839	R. Duncan & Co.,	—	do.	128 $\frac{3}{10}$ '	17 $\frac{0}{10}$ '	8 $\frac{0}{10}$ '
128. Flambeau, - -	1840	do.,	—	Iron	139 $\frac{2}{10}$ '	19 $\frac{2}{10}$ '	10 $\frac{2}{10}$ '
129. Dumbarton Castle	1840	Geo. Mills, - -	—	—	—	—	—

FROM 'COMET' TO 'KING EDWARD' 357

Machinery.			Owners.	Master.	Trade.
Type.	N.H.P.	Boilers.			
Simple, -	—	—	John Watson, - Andrew King, Alex. Miller, D. M'Kellar,	Donald Currie, - M'Kellar, -	Glasgow and Loch Fyne Largs and Millport Glasgow & Kilmun
Simple engine, -	—	Tubular, -	J. & W. Napier, - W. Young, -	Peter Chalmers, - John M'Pherson	Glasgow & Kilmun
—	—	—	John Watson, Andrew King, Alex. Miller, J. Henderson, A. M'Kellar, Jas. M'Donald, Jas. Fleming, Wm. Ewing,	Dugald Thom- son, J. Henderson, - Wm. Ewing, -	Glasgow and Rothesay Glasgow & Gareloch —
—	—	—	—	—	Glasgow & Dumbarton
—	—	—	Wm. Barr, -	J. Robertson, -	—
—	—	—	W. Young, -	Jas. Galloway, T. Houston,	Largs, Millport and Ayr
—	—	—	W. Young, -	J. Gillies, -	Largs, Millport and Ayr
Simple, -	—	Haystack, -	R. Finlay, - J. Watson, A. Miller, J. Henderson, A. M'Kellar,	Don. Currie, - J. Henderson, -	Glasgow and Inveraray Glasgow and Gareloch
Lever en- gine, and operated by a lever,	—	—	Tod & M'Gregor, - do.,	John Crawford, J. Crawford, -	— —
—	—	—	Wm. Young, Hugh Price, John Hunter, R. Napier, - R. B. Clelland,	John Hunter, - A. M'Leod, -	Largs, Millport and Ayr Glasgow & Gareloch Paisley and Largs
—	—	Box boiler, -	—	—	Glasgow & Gareloch
—	113	—	R. Finlay, - J. Watson, A. Miller, D. Napier, -	Don. Currie, - J. Dalzell, -	Glasgow and Inveraray Glasgow & Gareloch Largs and Millport
—	—	—	D. M'Kellar, J. Fleming, W. Allan, J. Thomson, J. Miller & Co.,	D. M'Kellar, - Tom Brown, - J. Livingstone,	Largs and Millport Glasgow & Rothesay Glasgow & Dumbarton



MAP OF STEAMBOAT ROUTE

List of Steamers

from the

‘Comet,’ 1812, to the ‘King Edward,’ 1901

360 THE CLYDE PASSENGER STEAMER

Name of Steamer.	Year.	Builders of Hull.	Makers of Machinery.	Description and Principal Dimensions of Hull.			
				Type.	Length B.P.	Beam.	Depth Moulded.
154. Sovereign, - -	1845	Tod & M'Gregor,	Tod & M'Gregor,	Iron	138 $\frac{8}{10}$ '	16 $\frac{5}{10}$ '	8 $\frac{2}{10}$ '
155. Scotia, - -	1845	do.,	—	—	141 $\frac{3}{10}$ '	17 $\frac{5}{10}$ '	8 $\frac{7}{10}$ '
156. Dunrobin Castle,	1846	do.,	Windsor Castle's Engine,	—	162 $\frac{6}{10}$ '	19'	8 $\frac{8}{10}$ '
157. Prince, - -	1846	Denny & Rankin,	St. George's Engine,	—	120 $\frac{6}{10}$ '	15 $\frac{1}{10}$ '	8 $\frac{4}{10}$ '
158. Mary Jane, - -	1846	Tod & M'Gregor,	Tod & M'Gregor,	Iron	165' 4"	20' 2"	9' 4"
159. Premier, - -	1846	Denny & Co., -	Tulloch & Denny	do.	140' 2"	17'	6' 6"
160. Monarch, - -	1846	J. Barr, Renfrew,	—	do.	126 $\frac{8}{10}$ '	16'	7 $\frac{7}{10}$ '
161. Vesta, - -	1846	Barr & M'Nab, -	Barr & M'Nab, -	—	166 $\frac{8}{10}$ '	17 $\frac{5}{10}$ '	8 $\frac{5}{10}$ '
162. Princess Alice, -	1847	Tod & M'Gregor,	Tod & M'Gregor,	Iron	145 $\frac{4}{10}$ '	18 $\frac{4}{10}$ '	8'
163. Breadalbane, -	1847	Smith & Rodger,	Smith & Rodger,	do.	140'	16 $\frac{1}{10}$ '	7' 9"
164. Isle of Arran, -	1847	John Wood, -	R. Napier, -	Wood, flush deck	—	—	—
165. Vesper, - -	1848	J. Henderson, -	Barr & M'Nab, -	Flush deck	148 $\frac{8}{10}$ '	16 $\frac{9}{10}$ '	8'
166. Plover, - -	1848	Wingate, - -	T. Wingate, -	Iron	159 $\frac{9}{10}$ '	16'	7 $\frac{6}{10}$ '
167. Duchess of Argyle	1848	Napier, - -	—	do.	150 $\frac{9}{10}$ '	15 $\frac{1}{10}$ '	6 $\frac{6}{10}$ '
168. Star, - -	1849	Tod & M'Gregor,	Tod & M'Gregor,	do.	156'	17 $\frac{9}{10}$ '	8 $\frac{4}{10}$ '
169. Queen, - -	1850	Denny, - -	—	do.	141' 7"	17 $\frac{1}{10}$ '	7'
170. Koh-i-noor, - -	1850	T. Wingate & Co.,	—	do.	146 $\frac{4}{10}$ '	11 $\frac{3}{10}$ '	6 $\frac{1}{10}$ '
171. Eclipse, - -	1850	Wingate, - -	Wingate, - -	do.	165'	17'	—
172. Prince Arthur, -	1851	Tod & M'Gregor,	—	—	154 $\frac{5}{10}$ '	15' 6"	7' 5"
173. Diana, - -	1851	J. Henderson & Son	—	—	156'	17 $\frac{1}{10}$ '	8 $\frac{5}{10}$ '

FROM 'COMET' TO 'KING EDWARD' 361

Ton- nage.	Machinery.			Owners.	Master.	Trade.
	Type.	N.H.P.	Boilers.			
70 ^{2.0} _{1.00}	Steeple, - -	—	Haystack, -	A. M'Kellar, -	J. Campbell, -	Glasgow & Gareloch
81 ^{6.8} _{1.00}	—	90	—	Jas. Reid, - Jno. Reid, David Tod, Castle Co., -	Dugald Thomson	—
119 ^{8.8} _{1.00}	Steeple, - -	—	Horizontal, -	J. Henderson, - A. M'Kellar,	J. Campbell, -	Glasgow & Rothesay
57 ^{8.4} _{1.00}	—	—	—	—	J. Bain, - -	Glasgow & Gareloch-head
223	Steeple, - -	120	Horizontal, -	Sir Jas. Mathieson	Arch. Campbell,	Stornoway thence on Rothesay and Inveraray
98	Steeple, - -	55	Haystack, -	Dumbarton Co., -	J. Wilson, -	Glasgow & Dumbarton
60 ^{3.0} _{1.00}	—	—	—	Henderson & M'Kellar,	Jno. M'Leod Campbell,	Glasgow & Helensburgh
118 ^{5.4} _{1.00}	Steeple, - -	—	—	M. Paton, - - Alex. A. Laird, Matt. Langlands, Tod & M'Gregor,	—	Large and Millport
104 ^{6.2} _{1.00}	—	96	—	Duncan M'Murich	G. Williams, -	—
89 ^{9.0} _{1.00}	Steeple, - -	—	Haystack, -	Ardrossan Steam-boat Co.,	Hugh Smith, -	Loch Goll
—	Single steeple, -	—	Tubular, 25 lbs.	—	Blackeney, -	Ardrossan & Arran
87 ^{2.4} _{1.00}	Steeple, - -	90	—	J. Henderson, -	Wm. Henderson	Kilmun via Kilcreggan
99 ^{2.0} _{1.00}	Steeple, - -	50	Horizontal, -	J. & G. Burns, - C. M'Kenzie,	J. M'Arthur, -	Bowling & Glasgow in connection with the Dumbarton-shire Rly.
84 ^{6.0} _{1.00}	Steeple, - -	60	—	Napier, - -	Robt. Campbell,	Glasgow & Gareloch-head
95 ^{1.0} _{1.00}	Steeple, - -	100	Flue, - -	Allan Reid & M'Kellar,	A. M'Kellar, -	Large, Millport, & Arran
58 ^{4.3} _{1.00}	—	70	—	P. L. Henderson,	Lang, - -	Dumbarton
49 ^{7.0} _{1.00}	—	—	—	R. Young, - -	R. Young, -	Kilmun & Glasgow via Dunoan
200	Steeple, - -	62	1 Haystack, -	—	M'Kellar, - -	Kilmun & Glasgow via Dunoan
99 ^{2.0} _{1.00}	—	—	—	Tod & M'Gregor, -	Robt. Moss, -	—
118 ^{2.4} _{1.00}	Steeple, - -	90	—	J. MacFarlane, - A. Cochran, J. Henderson,	J. Henderson, -	—

362 THE CLYDE PASSENGER STEAMER

Name of Steamer.	Year.	Builders of Hull.	Makers of Machinery.	Description and Principal Dimensions of Hull.			
				Type.	Length B.P.	Beam.	Depth Moulded.
174. Victoria, - -	1851	R. Napier, - -	R. Napier, - -	Iron	123 $\frac{6}{10}$ '	15 $\frac{5}{10}$ '	7 $\frac{6}{10}$ '
175. Ardentinnny, -	1851	Wingate, - -	Wingate, - -	do.	163 $\frac{4}{10}$ '	—	6 $\frac{5}{10}$ '
176. Reindeer, - -	1852	Blackwood & Gordon,	—	do.	166'	15 $\frac{7}{10}$ '	7 $\frac{3}{10}$ '
177. Glasgow Citizen,	1852	J. Barr, - -	Barr, - - -	do.	156 $\frac{9}{10}$ '	16 $\frac{1}{10}$ '	8 $\frac{3}{10}$ '
178. Venus, - - -	1852	J. & G. Thomson,	J. & G. Thomson,	Flush deck	159 $\frac{3}{10}$ '	17 $\frac{1}{10}$ '	8 $\frac{3}{10}$ '
179. Rotary, - - -	1852	Wingate, - -	Wingate, - -	—	146 $\frac{2}{10}$ '	14'	6 $\frac{4}{10}$ '
180. Mountaineer, -	1852	J. & G. Thomson,	J. & G. Thomson,	Flush deck	174 $\frac{3}{10}$ '	17 $\frac{6}{10}$ '	7 $\frac{2}{10}$ '
181. Gourrock, - -	1852	Scott & Co., - -	—	—	113 $\frac{4}{10}$ '	13 $\frac{4}{10}$ '	6 $\frac{1}{10}$ '
182. Eagle, - - -	1852	Denny, - -	M'Nab & Clark, Greenock,	Flush deck	169 $\frac{9}{10}$ '	16 $\frac{5}{10}$ '	8 $\frac{2}{10}$ '
183. Osprey, - - -	1852	Barclay, Curle & Co.,	Caird & Co., -	—	169 $\frac{8}{10}$ '	18 $\frac{5}{10}$ '	8 $\frac{3}{10}$ '
184. Baron, - - -	1853	Henderson & Co.,	J. W. Hoby & Co.,	Iron	189 $\frac{1}{10}$ '	16 $\frac{8}{10}$ '	9 $\frac{1}{10}$ '
185. Wellington, -	1853	Barr, - - -	Barr, - - -	Flush deck	163 $\frac{6}{10}$ '	16'	6 $\frac{7}{10}$ '
186. Eva, - - -	1853	W. Denny, - -	—	—	141 $\frac{6}{10}$ '	14 $\frac{6}{10}$ '	6 $\frac{6}{10}$ '
187. Chancellor, -	1853	Denny & Co., -	Denny, - -	Iron	167 $\frac{4}{10}$ '	17 $\frac{1}{10}$ '	7 $\frac{1}{10}$ '
188. Vesta, - - -	1853	J. Barr, Glasgow,	J. Barr, - -	do.	162' 3"	16' 5"	6' 8"
189. Loch Goll, - -	1853	J. Barr, - -	J. Barr, - -	do.	163 $\frac{9}{10}$ '	16 $\frac{5}{10}$ '	7 $\frac{1}{10}$ '
190. Gem, - - -	1854	J. Henderson & Son,	Henderson, Colbourne & Co.,	do.	161'	15' 9"	7 $\frac{5}{10}$ '
191. Rothesay Castle, No. 3,	1854	Caird, - - -	Caird, - - -	do.	181 $\frac{8}{10}$ '	17 $\frac{8}{10}$ '	8 $\frac{1}{10}$ '
192. Ruby, No. 1, -	1854	J. Henderson & Son,	Henderson, -	do.	172 $\frac{9}{10}$ '	15 $\frac{9}{10}$ '	8 $\frac{2}{10}$ '
193. Vulcan, - - -	1854	R. Napier, - -	R. Napier, -	Flush deck	167 $\frac{9}{10}$ '	16 $\frac{3}{10}$ '	8 $\frac{1}{10}$ '
194. Express, - - -	1854	Barr, - - -	Barr, - - -	do.	179'	16 $\frac{1}{10}$ '	6 $\frac{9}{10}$ '
195. Superb, - - -	1855	Denny, - -	—	—	—	—	—

FROM 'COMET' TO 'KING EDWARD' 363

Ton- nage.	Machinery.			Owners.	Master.	Trade.
	Type.	N.H.P.	Boilers.			
69 ^{2.8} ₁₀₀	Oscillating,	—	—	J. M'Lean, -	J. M'Lean, -	Glasgow & Gareloch-head
108 ^{9.3} ₁₀₀	Steeple, -	—	Haystack, -	J. Ballardie, -	Peter Chalmers,	Lochgoil-head
84 ^{1.8} ₁₀₀	—	—	—	J. Reid, -	P. Ralston, -	Kyles of Bute
105 ^{4.4} ₁₀₀	Steeple, -	75	Haystack, -	P. Ralston, -	Neil M'Donald,	Glasgow & Rothesay
99 ^{7.4} ₁₀₀	Steeple, -	90	2 Tubular, -	J. M'Laren, -	A. M'Kellar, -	Arran via Largs & Millport
66	Rotary, -	—	Water tube, -	J. Barr, -	—	Dumbar-ton
109 ^{6.8} ₁₀₀	Steeple, -	120	2 Tubular, -	Allan, -	J. M'Gown, -	Glasgow and Ard-rishaig
53 ^{6.4} ₁₀₀	—	—	—	Reid, -	Thos. Seath, -	—
92 ^{7.2} ₁₀₀	Oscillating, -	70	2 Tubular, waggon-shaped, 25 lbs.,	LaIRD, -	R. Price, -	Glasgow & Rothesay
109 ^{8.6} ₁₀₀	—	—	—	David Napier, -	Neil M'Gill, -	Glasgow & Rothesay
121 ^{8.4} ₁₀₀	Oscillating, -	—	Box boilers, -	D. Hutchison & Co.,	Jas. M'Kinlay, -	Glasgow & Gareloch
97 ^{1.5} ₁₀₀	Steeple, -	60	Haystack, -	Thos. Seath, Peter Ralston, Jas. M'Gregor, -	M'Coll, -	Glasgow, Kilmun & Dunoon
82 ^{1.5} ₁₀₀	—	—	—	Williamson, Cook, Ferguson, Buchanan, F. Johnstone, Neil M'Gill, D. Weir, -	—	—
70 ^{3.3} ₁₀₀	Diagonal, -	80	Haystack, -	Jas. Ward Hoby, -	R. Fisher, -	Glasgow & Arrochar
65 ^{3.5} ₁₀₀	Steeple, -	75	Haystack, -	A. M'Kellar, -	John Wilson, -	Glasgow & Kilmun
124 ^{1.3} ₁₀₀	Steeple, -	80	Haystack, -	Morton, -	John Campbell, -	Glasgow & Loch Gail
97 ^{7.5} ₁₀₀	Steeple, -	75	Haystack, -	Little, etc., -	A. M'Intyre, -	Glasgow & Rothesay
112 ^{6.6} ₁₀₀	Diagonal, -	—	Haystack, -	Loch Lomond Co., -	Robt. M'Aulay, -	Glasgow & Rothesay
105 ^{7.4} ₁₀₀	Oscillating, -	90	2 Haystack, -	J. M'Leod Campbell, Robt. Campbell, -	Neil M'Gill, -	Glasgow & Rothesay
68 ^{2.7} ₁₀₀	Oscillating, -	80	Tubularsquare, -	Loch Gail Co., -	—	—
71 ^{4.7} ₁₀₀	Steeple, -	70	1 Haystack, -	Jas. Henderson, -	P. Henderson, -	Glasgow & Rothesay
—	Steeple, -	—	Flue, -	W. F. Johnstone, N. M'Gill, -	A. M'Lean, -	Glasgow & Rothesay
				Henderson, -	Campbell, -	Kilmun via Kilcreggan
				J. & W. Napier, -	Dun. Stewart, -	Helensburgh & Gareloch

364 THE CLYDE PASSENGER STEAMER

Name of Steamer.	Year.	Builders of Hull.	Makers of Machinery.	Description and Principal Dimensions of Hull.			
				Type.	Length B.P.	Beam.	Depth Moulded.
196. Iona, No. 1, .	1855	J. & G. Thomson,	J. & G. Thomson,	Flush deck	225 $\frac{3}{10}$ '	20 $\frac{4}{10}$ '	9'
197. Sir Colin Campbell,	1855	John Barr, - -	J. Barr, - -	do.	166 $\frac{7}{10}$ '	17 $\frac{5}{10}$ '	7 $\frac{1}{10}$ '
198. Alma, - - -	1855	Barr & M'Nab, -	Barr, - - -	do.	157 $\frac{3}{10}$ '	16 $\frac{2}{10}$ '	7 $\frac{4}{10}$ '
199. Nelson, - - -	1855	Seath, - - -	Wingate, - - Eclipse's engine,	—	150 $\frac{1}{10}$ '	16 $\frac{5}{10}$ '	6 $\frac{8}{10}$ '
200. Mail, - - -	1856	John Barr, - -	Barr, - - -	—	183'	16' 6"	7' 1"
201. Jupiter, - - -	1856	Tod & M'Gregor, -	Tod & M'Gregor,	—	184 $\frac{9}{10}$ '	18 $\frac{2}{10}$ '	8 $\frac{3}{10}$ '
202. Royal Burgh, -	1857	Seath, - - -	—	—	102 $\frac{3}{10}$ '	14'	6 $\frac{3}{10}$ '
203. Alliance, - - -	1857	Tod & M'Gregor, -	Tod & M'Gregor,	Deck saloon do.	140'	30'	7'
204. Spunkie, - - -	1857	do.,	do.,	do.	191 $\frac{3}{10}$ '	18 $\frac{5}{10}$ '	7 $\frac{6}{10}$ '
205. Kelpie, - - -	1857	do.,	do.,	do.	191 $\frac{1}{10}$ '	18 $\frac{5}{10}$ '	7 $\frac{6}{10}$ '
206. Dumbarton, -	1858	Smith & Rodger, -	Smith & Rodger,	Flush	143' 5"	17' 2"	—
207. Hero, - - -	1858	Wingate, - - -	T. Wingate, -	—	181'	19' 1 $\frac{5}{10}$ "	7' 1 $\frac{3}{10}$ "
208. Loch Long, -	1859	Denny, - - -	Denny, - - -	—	150 $\frac{4}{10}$ '	15 $\frac{2}{10}$ '	7 $\frac{3}{10}$ '
209. Pearl, - - -	1859	Henderson, Col- bourne & Co.,	Henderson, Col- bourne & Co.,	Flush	182 $\frac{2}{10}$ '	19 $\frac{5}{10}$ '	7 $\frac{6}{10}$ '
210. Windsor Castle, -	1859	Caird & Co., -	Caird & Co., -	Flush steel deck saloon	191'	20'	—
211. Earl of Arran, -	1860	Blackwood & Gordon,	Blackwood & Gordon,	Flush	140'	18' 6"	8' 6"
212. Ruby, No. 2, -	1860	Henderson, Col- bourne & Co.,	Henderson, Col- bourne & Co.,	do.	188 $\frac{4}{10}$ '	18 $\frac{5}{10}$ '	7 $\frac{7}{10}$ '
213. Juno, - - -	1860	Tod & M'Gregor, -	Tod & M'Gregor,	Flush deck	188 $\frac{9}{10}$ '	19 $\frac{1}{10}$ '	8'
214. Mail, - - -	1860	do.,	do.,	Raised quar. deck	179 $\frac{5}{10}$ '	18 $\frac{1}{10}$ '	7 $\frac{4}{10}$ '
215. Sultan, - - -	1861	Barclay, Curle & Co.,	Barclay, Curle & Co. (Welling- ton's engine),	—	166'	16 $\frac{6}{10}$ '	7 $\frac{3}{10}$ '

FROM 'COMET' TO 'KING EDWARD' 365

Ton- nage.	Machinery.			Owners.	Master.	Trade.
	Type.	N. H. P.	Boilers.			
173 ^{8.5} ₁₀₀	Oscillating, -	—	Horizontal, -	MacBrayne, - D. & A. Hutchi- son,	M'Gowan, -	Glasgow and Ard- rishaig
119 ^{7.6} ₁₀₀	Steeple, - -	85	Haystack, -	J. Barr, - -	Alex. M'Lean, -	Glasgow and Ard- rishaig
89 ^{9.0} ₁₀₀	Steeple, - -	—	1 Haystack, -	D. Stewart, - -	D. Stewart, -	Glasgow & Rothesay
113 ^{7.2} ₁₀₀	Steeple, - -	60	1 Haystack, -	A. M'Kellar, -	—	Glasgow & Kilmun trade <i>via</i> Dunoon
86 ^{8.1} ₁₀₀	Steeple, - -	85	—	John Barr, - -	—	—
107 ^{8.8} ₁₀₀	Steeple, - -	110	2 M. Tubular, -	J. Reid, - - D. & A. M'Kellar,	M'Kellar, -	Glasgow to Largs, Millport & Arran
39 ^{6.4} ₁₀₀	—	45	—	T. B. Seath, -	—	—
51.97	Trunk with centre wheel,	85	—	Geo. Mills, - -	—	Glasgow & Arrochar
165 ^{7.6} ₁₀₀	Steeple, - -	130	2 Haystack, -	P. M'Gregor, -	R. Young, -	Glasgow to Largs, Millport & Arran
165 ^{9.6} ₁₀₀	Steeple, - -	130	2 Haystack, -	P. M'Gregor, -	Dugald Weir, -	Glasgow to Largs, Millport & Arran
—	—	—	—	—	—	Glasgow & Dumbar- ton
157 ^{2.0} ₁₀₀	Steeple, - -	80	1 Haystack, -	T. Wingate, - J. M'Clymont,	R. Young, -	Glasgow & Rothesay
72.95	Oscillating, -	60	1 Haystack, -	Loch Gail Steam- boat Co.,	W. M'Intyre, -	Glasgow & Loch Gail
167 ^{7.1} ₁₀₀	Diagonal oscil- lating— 4 cylinders, 1 crank,	120	2 Haystacks, -	J. Henderson, -	M'Intyre, -	Glasgow & Rothesay
—	D. diagonal, -	—	1 Haystack, -	Caird & Co., -	Campbell, -	Glasgow & Rothesay
—	Double steeple, -	80	Tubular, 30lbs.	Ardrossan Steam- boat Co.,	Blackney, -	Ardrossan & Arran
175 ^{6.4} ₁₀₀	Diagonal oscil- lating,	100	2 Haystacks, -	P. L. Henderson,	Price, -	Glasgow & Rothesay
184 ^{1.8} ₁₀₀	Steeple, - -	110	2 Haystacks, -	M'Kellar, - -	M'Kellar, -	Glasgow, Largs & Arran
158 ^{6.9} ₁₀₀	Steeple, - -	85	Haystack, -	J. A. & R. Camp- bell,	R. Campbell, -	Glasgow & Kilmun
117 ^{8.4} ₁₀₀	Steeple, - -	60	1 Haystack, 30 lbs.	A. M'Kellar, -	Barrie, - -	Glasgow & Kilmun <i>via</i> Dunoon

366 THE CLYDE PASSENGER STEAMER

Name of Steamer.	Year.	Builders of Hull.	Makers of Machinery.	Description and Principal Dimensions of Hull.			
				Type.	Length B.P.	Beam.	Depth Moulded.
216. Ruby, No. 3, -	1861	Henderson, Colbourne & Co.,	Henderson, Colbourne & Co.,	Flush deck	209 ³ / ₁₀	19 ⁵ / ₁₀	8 ¹ / ₁₀
217. Neptune, -	1861	R. Napier, -	R. Napier, -	do.	201 ⁷ / ₁₀	18 ⁷ / ₁₀	8 ¹ / ₁₀
218. Rothesay Castle,	1861	Simons & Co., -	Simons & Co., -	do.	191 ⁵ / ₁₀	19'	8 ¹ / ₁₀
219. Kingston, -	1862	T. Wingate, -	T. Wingate, -	Deck saloons	151'	20'	7 ³ / ₁₀
220. Iona, No. 2, -	1863	J. & G. Thomson,	J. & G. Thomson,	do.	249 ³ / ₁₀	25'	9 ¹ / ₁₀
221. Victory, -	1863	Barclay, Curle & Co.,	Barr, - - -	Flush deck	176 ⁷ / ₁₀	17 ⁹ / ₁₀	6' 6"
222. Iona, No. 3, -	1864	J. & G. Thomson,	J. & G. Thomson,	Deck saloons	255 ⁵ / ₁₀	25 ⁹ / ₁₀	9'
223. Vivid, - - -	1864	Barclay, Curle & Co.,	Barclay, Curle & Co.,	Flush deck	188 ³ / ₁₀	18 ² / ₁₀	7 ² / ₁₀
224. Eagle, No. 2, -	1864	Connell & Co., -	Anchor Line, -	Raised quar. deck	204'	20 ² / ₁₀	7 ³ / ₁₀
225. Largs, - - -	1864	Wingate, - - -	Wingate, - - -	Flush deck	161 ⁴ / ₁₀	19 ¹ / ₁₀	7 ² / ₁₀
226. Leven, - - -	1864	Clyde Shipbuilding Co.,	Rankin & Blackmore,	Raised quar. deck	139 ⁴ / ₁₀	14 ¹ / ₁₀	6 ⁵ / ₁₀
227. Chancellor, No. 2,	1864	Blackwood & Gordon,	Blackwood & Gordon,	Deck saloons	163 ² / ₁₀	18 ⁷ / ₁₀	7'
228. Lennox, - - -	1864	Clyde Shipbuilding Co.,	Rankin & Blackmore,	Raised quar. deck	139 ⁴ / ₁₀	14 ¹ / ₁₀	6 ⁵ / ₁₀
229. Arran Castle, -	1864	K. M'Intyre, -	do.,	Deck saloon aft	220 ⁵ / ₁₀	21'	7 ⁵ / ₁₀
230. Kyles, - - -	1865	Caird & Co., -	Caird & Co., -	—	219 ⁴ / ₁₀	20 ² / ₁₀	8 ¹ / ₁₀
231. Undine, - - -	1865	Henderson, Colbourne & Co.,	Henderson, Colbourne & Co.,	Flush deck	200'	18 ⁵ / ₁₀	7 ⁷ / ₁₀
232. Bute, - - -	1865	Caird & Co., -	Caird & Co., -	Deck saloon	219 ⁴ / ₁₀	20 ² / ₁₀	8 ¹ / ₁₀
233. Rothesay Castle,	1865	Henderson, Colbourne & Co.,	Barr & Co., -	Flush deck	203'	19 ³ / ₁₀	7 ⁹ / ₁₀
234. Vale of Clwyd, -	1865	Seath, - - -	A. Campbell & Son,	do.	186 ⁵ / ₁₀	18 ¹ / ₁₀	7'
235. Chevalier, - -	1866	J. & G. Thomson,	J. & G. Thomson,	Deck saloons	211'	22 ² / ₁₀	9 ¹ / ₁₀

FROM 'COMET' TO 'KING EDWARD' 367

Ton- nage.	Machinery.			Owners.	Master.	Trade.
	Type.	N.H.P.	Boilers.			
200 ⁵¹ ₁₀₀	Diagonal oscillating,	120	2 Haystacks, -	Henderson, -	R. Price, -	Glasgow & Rothesay
200 ²⁰ ₁₀₀	D. diagonal, -	100	2 Haystacks, -	J. & W. Napier, -	A. M'Lean, -	Glasgow & Rothesay
177 ⁰² ₁₀₀	Oscillating, -	110	2 Haystacks, 35 lbs.	A. Watson, -	M. Campbell, -	Glasgow & Rothesay
153	Diagonal, -	86	2 Haystacks, -	—	—	Kingston & Dublin Sunday boat between Glasgow & Greenock
367 ⁷³ ₁₀₀	Oscillating -	180	Horizontal, -	D. & A. Hutchison, MacBrayne, -	M'Gowan, -	Glasgow and Ardrishaig
80 ¹⁴ ₁₀₀	Steeple, -	75	Haystack, -	D. Stewart, -	D. Stewart, -	Glasgow & Rothesay
141 ⁴¹ ₁₀₀	Oscillating, -	180	Horizontal, -	D. & A. Hutchison, MacBrayne, -	M'Gowan, -	Glasgow and Ardrishaig
156 ⁷⁴ ₁₀₀	Steeple, -	80	Haystack, -	J. & R. Campbell, -	R. Campbell, -	Glasgow & Kilmun
98 ² ₁₀₀	D. diagonal, -	103	2 Haystacks, -	Wm. Buchanan, -	Wm. Buchanan, -	Glasgow & Rothesay
87 ⁵¹ ₁₀₀	D. oscillating, -	86	2 Haystacks, -	Wemyss Bay Railway Co. -	—	Wemyss Bay and Millport
65 ³⁹ ₁₀₀	Oscillating, -	40	Haystack, -	Denny & Co., -	Price, -	Glasgow and Dumbarton
80 ⁶⁸ ₁₀₀	D. diagonal, -	80	Haystack, -	Loch Lomond Co., -	Neilson, -	Glasgow & Arrochar
65 ³⁹ ₁₀₀	Oscillating, -	40	Haystack, -	Denny & Co., -	—	Glasgow and Dumbarton
120 ⁸⁶ ₁₀₀	Oscillating, -	130	2 Haystacks, -	A. Watson, -	R. Young, -	Glasgow and Arran
171 ²⁵ ₁₀₀	Oscillating, -	120	2 Haystacks, -	Wemyss Bay Railway Co., -	—	Wemyss Bay and Rothesay
94 ⁶ ₁₀₀	Single diagonal, -	90	Horizontal, -	J. & P. L. Henderson, -	M'Aulay, -	Glasgow & Rothesay
171 ³ ₁₀₀	Oscillating, -	120	2 Haystacks, -	Wemyss Bay Railway Co., -	J. Reid, -	Wemyss Bay and Rothesay
112 ⁷⁵ ₁₀₀	Steeple, -	80	2 Haystacks, -	Wm. Barr, -	W. Barr, -	Glasgow & Rothesay
98 ⁰⁰ ₁₀₀	Steeple, -	90	1 Haystack, -	A. Watson, W. Campbell, Seath & Steel, -	Downie, -	Glasgow and Ayr
117 ¹⁴ ₁₀₀	Oscillating, -	150	Horizontal, -	D. & A. Hutchison, MacBrayne, -	Dun. Campbell, -	Glasgow and Ardrishaig

368 THE CLYDE PASSENGER STEAMER

Name of Steamer.	Year.	Builders of Hull.	Makers of Machinery.	Description and Principal Dimensions of Hull.			
				Type.	Length B.P.	Beam.	Depth Moulded.
236. Argyle, -	1866	Barclay, Curle & Co.,	Barclay, Curle & Co.,	Flush deck	177 $\frac{2}{3}$ '	17 $\frac{5}{8}$ '	7 $\frac{2}{3}$ '
237. Athole, -	1866	do.,	do.,	Poop deck aft do.	192 $\frac{1}{8}$ '	15 $\frac{5}{8}$ '	7 $\frac{2}{3}$ '
238. Vesper, -	1866	do.,	Barr's 'Express' Engine,		173 $\frac{2}{3}$ '	16 $\frac{5}{8}$ '	7 $\frac{2}{3}$ '
239. Dandie Dinmont, -	1866	A. & J. Inglis, -	A. & J. Inglis, -	Deck saloons	197 $\frac{2}{3}$ '	22 $\frac{5}{8}$ '	6 $\frac{2}{3}$ '
240. Meg Merrilies, -	1866	do.,	do.,	do.	192 $\frac{1}{8}$ '	23 $\frac{1}{8}$ '	7 $\frac{1}{8}$ '
241. Ardencaple, -	1866	R. Duncan, -	Rankin & Blackmore,	Poop aft	150'	16 $\frac{2}{3}$ '	6 $\frac{1}{8}$ '
242. Vale of Doon, -	1866	Seath, -	A. Campbell, -	Flush deck	197'	18 $\frac{1}{8}$ '	7 $\frac{2}{3}$ '
243. Rosneath, -	1866	R. Duncan, -	Rankin & Blackmore,	Poop aft	150'	16 $\frac{2}{3}$ '	6 $\frac{1}{8}$ '
244. Leven, -	1866	Blackwood & Gordon,	do.,	Poop deck aft do.	150 $\frac{2}{3}$ '	16 $\frac{2}{3}$ '	6 $\frac{1}{8}$ '
245. Ardgowan, -	1866	Laurence Hill, -	do.,		150 $\frac{2}{3}$ '	16 $\frac{1}{8}$ '	6 $\frac{1}{8}$ '
246. Dunoon Castle, -	1867	Wingate, -	Wingate, -	Flush deck	191 $\frac{7}{8}$ '	18 $\frac{2}{3}$ '	7 $\frac{1}{8}$ '
247. Loch Lomond, -	1867	Denny, -	—	—	129'	16 $\frac{2}{3}$ '	6 $\frac{1}{8}$ '
248. Elaine, -	1867	R. Duncan, -	Rankin & Blackmore,	Poop deck aft do.	175'	17 $\frac{1}{8}$ '	6 $\frac{1}{8}$ '
249. Lancelot, -	1868	do.,	do.,		191 $\frac{2}{3}$ '	18'	6 $\frac{1}{8}$ '
250. Sultana, -	1868	Robertson & Co.,	Wm. King & Co.,	Flush deck do.	188 $\frac{1}{8}$ '	13 $\frac{2}{3}$ '	7 $\frac{2}{3}$ '
251. Marquis of Bute, -	1868	Barclay, Curle & Co.,	Barclay, Curle & Co.,		196 $\frac{2}{3}$ '	18 $\frac{1}{8}$ '	7 $\frac{2}{3}$ '
252. Lady Mary, -	1868	Blackwood & Gordon,	Blackwood & Gordon,	do.	173' 5"	20'	8' 3"
253. Guinevere, -	1869	R. Duncan, -	Rankin & Blackmore,	Poop deck aft	200 $\frac{2}{3}$ '	19 $\frac{1}{8}$ '	6 $\frac{1}{8}$ '
254. Bonnie Doon, -	1870	Seath, -	A. Campbell, -	Deck saloon aft	209' 5"	19' 1"	7' 6"
255. Craigrownie, -	1870	R. Duncan, -	Rankin & Blackmore,	Poop deck aft	175'	17 $\frac{1}{8}$ '	6 $\frac{2}{3}$ '
256. Carrick Castle, -	1870	Fullerton, Paisley,	Wm. King & Co.,	Flush deck	192 $\frac{1}{8}$ '	18 $\frac{2}{3}$ '	7 $\frac{1}{8}$ '

FROM 'COMET' TO 'KING EDWARD' 369

Machinery.			Owners.	Master.	Trade.
Type.	N.H.P.	Boilers.			
steeples, - -	75	Haystack, -	D. Stewart, -	C. Robertson, -	Glasgow & Rothesay
steeples, - -	80	1 Haystack, -	D. Stewart, -	D. Stewart, -	Glasgow & Rothesay
steeples, - -	75	1 Haystack, -	J. & R. Campbell,	R. Campbell, -	Glasgow & Kilmun
D. diagonal and oscillating,	110	2 Haystacks, 40 lbs.,	R. Hodgson, - North British Steam Pkt. Co.,	M'Kinlay, -	Craigendoran & Ardrishaig
D. diagonal and oscillating,	110	2 Haystacks, 40 lbs.,	R. Hodgson, - North British Steam Pkt. Co.,	J. M'Kinlay, -	Craigendoran & Ardrishaig
Oscillating, -	50	1 Haystack, -	J. Russell, -	—	Greenock & Helensburgh
steeples, - -	110	1 Haystack, -	Seath, - - - Thos. Steele, Ayr,	Downie, - -	Glasgow and Ayr
Oscillating, -	..	1 Haystack, -	Greenock and Helensburgh Co.,	—	Greenock & Helensburgh
Oscillating, -	50	1 Haystack, -	Greenock and Helensburgh Co.,	—	Greenock & Helensburgh
Oscillating, -	50	1 Haystack, -	Greenock and Helensburgh Co.,	—	Greenock & Helensburgh
steeples, - -	90	2 Horizontals,	D. Lennox, - - Rothesay Carriers,	W. M'Intyre, -	Glasgow & Rothesay
—	56	—	P. Denny, - -	Lang, - -	Glasgow and Dumbarton
Oscillating, -	70	1 Haystack, 40 lbs.,	Graham, Brymner & Co.,	R. Young, -	Glasgow & Millport
Oscillating, -	90	1 Haystack, 40 lbs.,	Graham, Brymner & Co.,	R. Young, -	Glasgow & Millport
single diagonal,	80	1 Haystack, 45 lbs.,	A. Williamson, -	A. Williamson,	Glasgow & Kyles
single diagonal,	85	1 Haystack, 45 lbs.,	A. & T. M'Lean, - A. Watson,	A. M'Lean, -	Glasgow & Rothesay
Oscillating, -	110	2 Haystacks, 40 lbs.,	Duke of Hamilton,	A. Brown, -	Ardrrossan & Arran
Oscillating, -	86	2 Haystacks, 40 lbs.,	G. Brymner & Co.,	R. Young, -	Glasgow & Arran
single diagonal,	96	1 Haystack, -	T. Seath & Steele,	D. Downie, -	Glasgow and Ayr
Oscillating, -	70	1 Haystack, -	Brymner & Co., -	Jno. M'Lachlan,	Greenock and Kilmun
single diagonal,	85	1 Haystack, -	Loch Gail Co., -	W. Barr, - -	Glasgow & Loch Gail

370 THE CLYDE PASSENGER STEAMER

Name of Steamer.	Year.	Builders of Hull.	Makers of Machinery.	Description and Principal Dimensions of Hull.			
				Type.	Length B.P.	Beam.	Depth Moulded.
257. Lorne, - - -	1871	M'Millan, Dumbarton,	J. & G. Thomson,	Flush deck	212 $\frac{5}{8}$ '	20'	7 $\frac{1}{8}$ '
258. Heather Bell, -	1871	Blackwood & Gordon,	Blackwood & Gordon,	do.	207' 7"	21'	8' 8"
259. Garcloch, - -	1872	H. Murray & Co.,	D. Rowan, -	Poop deck aft	180'	18 $\frac{3}{8}$ '	6 $\frac{1}{4}$ '
260. Lady Gertrude, -	1872	Blackwood & Gordon,	Blackwood & Gordon,	Flush deck	190'	18'	7' 6"
261. Windsor Castle, -	1875	Seath, - - -	Wm. King & Co.,	do.	195 $\frac{5}{8}$ '	19'	7 $\frac{1}{4}$ '
262. Viceroy, - - -	1875	D. & W. Henderson,	D. & W. Henderson,	Poop deck aft	194 $\frac{7}{8}$ '	20 $\frac{1}{8}$ '	7 $\frac{1}{4}$ '
263. Benmore, - - -	1876	Seath, - - -	Wm. King & Co.,	do.	201 $\frac{2}{8}$ '	19 $\frac{1}{8}$ '	7 $\frac{1}{4}$ '
264. Bonnie Doon, No. 2 -	1876	do.,	A. Campbell & Co.,	Deck saloon aft	218'	20'	7 $\frac{1}{4}$ '
265. Lord of the Isles,	1877	D. & W. Henderson,	D. & W. Henderson,	Deck saloons	246'	24 $\frac{2}{8}$ '	9'
266. Sheila, - - -	1877	Caird & Co., -	Caird & Co., -	Poop deck aft	205 $\frac{5}{8}$ '	20 $\frac{1}{8}$ '	7 $\frac{1}{4}$ '
267. Glen Rosa, - -	1877	do.,	do.,	do.	206'	20'	7' 5"
268. Adela, - - -	1877	do.,	Blackwood & Gordon,	Flush deck	197'	19 $\frac{2}{8}$ '	7 $\frac{1}{4}$ '
269. Columba, - - -	1878	J. & G. Thomson,	J. & G. Thomson,	Steel deck saloons	301 $\frac{4}{8}$ '	27 $\frac{1}{8}$ '	9 $\frac{1}{4}$ '
270. Brodick Castle, -	1878	H. M'Intyre, -	Wm. King & Co.,	Poop and saloon aft, shelter deck forw'd	207 $\frac{6}{8}$ '	21 $\frac{7}{8}$ '	7 $\frac{1}{4}$ '
271. Edinburgh Castle,	1879	R. Duncan & Co.,	Rankin & Blackmore,	Deck saloon aft	205 $\frac{3}{8}$ '	19 $\frac{3}{8}$ '	7 $\frac{1}{4}$ '
272. Chancellor, - -	1880	R. Chambers, Jr.,	M. Paul & Co., -	Deck saloons	199 $\frac{7}{8}$ '	21 $\frac{1}{8}$ '	8 $\frac{1}{4}$ '

FROM 'COMET' TO 'KING EDWARD' 371

Ton- nage.	Machinery.			Owners.	Master.	Trade.
	Type.	N.H.P.	Boilers.			
223 ^{6.5} ₁₀₀	2 D. oscillating,	120	2 Haystacks, -	Dun. Stewart, -	Dun. Stewart, -	Glasgow & Rothessay
268	D. diagonal, -	150	2 Horizontals, 40 lbs.,	Sir C. E. Scott, Bart.,	A. Brown, -	Ardrossan & Arran
178 ^{4.5} ₁₀₀	2 Oscillating, -	85	1 Haystack, 40 lbs.,	R. Young, - N.B.S.P. Co.,	D. M'Kinlay, -	Helensburgh & Gareloch
167 ⁷ ₁₀₀	Single diagonal,	82	1 Haystack, 40 lbs.,	Campbell & Gillies,	D. Bell, -	Wemyss Bay and Rothessay
195 ^{1.0} ₁₀₀	Single diagonal, jet condensing,	85	1 Haystack, 50 lbs.,	W. M'Lean, - Loch Goll Co.,	W. Barr, -	Glasgow & Loch Goll
218 ^{3.5} ₁₀₀	Single diagonal, jet condensing,	194	1 Haystack, 50 lbs.,	A. Williamson, -	A. Williamson,	Glasgow & Kyles
235 ^{0.1} ₁₀₀	Single diagonal, jet condensing,	85	1 Haystack, 50 lbs.,	R. Campbell, -	R. Campbell, -	Glasgow & Kilmun
150 ^{9.2} ₁₀₀	Single diagonal, surface condensing,	96	1 Haystack, 50 lbs.,	T. Steel & Seath,	A. Gillies, -	Glasgow and Ayr
427 ^{4.5} ₁₀₀	Diagonal oscillating, surface condensing,	326	2 Haystacks, 50 lbs.,	Glasgow and Inveraray Co.,	R. Young, -	Glasgow & Inveraray
255 ^{9.3} ₁₀₀	Single diagonal, surface condensing,	120	1 Haystack, 50 lbs.,	A. Campbell, -	A. Campbell, -	Wemyss Bay and Rothessay
254	Single diagonal, surface condensing,	120	1 Haystack, 50 lbs.,	Shearer Bros., -	M'Dermid, -	Glasgow & Arran
204 ^{9.8} ₁₀₀	Single diagonal, ex Lady Gertrude,	90	1 Haystack, 50 lbs.,	A. Campbell, -	D. Bell, -	Wemyss Bay and Rothessay
543 ^{2.0} ₁₀₀	Oscillating, surface condensing,	220	4 Horizontals, 50 lbs.,	A. Hutchison, - D. MacBrayne, -	J. M'Gaw, -	Glasgow and Ard-rishaig
242 ^{9.0} ₁₀₀	Double diagonal, ex Eagle, jet condensing,	96	2 Haystacks, 50 lbs.,	W. Buchanan, -	W. Buchanan, -	Ardrossan and Arran
234 ^{1.2} ₁₀₀	Single diagonal, jet condensing,	88	1 Haystack, 50 lbs.,	M'Lean, - Loch Goll Co.,	W. Barr, -	Glasgow & Loch Goll
232 ^{8.0} ₁₀₀	Double diagonal, surface condensing,	140	1 Haystack, 50 lbs.,	Smollet & M'Lean Bros.,	T. Nelson, -	Glasgow & Arrochar

372 THE CLYDE PASSENGER STEAMER

Name of Steamer.	Year.	Builders of Hull.	Makers of Machinery.	Description and Principal Dimensions of Hull.			
				Type.	Length B.P.	Beam.	Depth Moulded.
273. Scotia, - - -	1880	H. M'Intyre, -	W. King & Co., -	Poop & saloon aft, shelter deck for'ard Deck saloons	211 $\frac{2}{10}$ '	21 $\frac{8}{10}$ '	8 $\frac{1}{10}$ '
274. Ivanhoe, - - -	1880	D. & W. Henderson,	D. & W. Henderson,	Deck saloon aft	225 $\frac{3}{10}$ '	22 $\frac{2}{10}$ '	8 $\frac{3}{10}$ '
275. Meg Merrilies, -	1883	Barclay, Curle & Co.,	Barclay, Curle & Co.,	Deck saloon aft	210 $\frac{3}{10}$ '	21 $\frac{4}{10}$ '	7 $\frac{2}{10}$ '
276. Jeanie Deans, -	1884	do.,	do.,	Poep deck aft	210'	20 $\frac{1}{10}$ '	7 $\frac{6}{10}$ '
277. Waverley, - - -	1885	H. M'Intyre, -	Hutson & Corbett,	Deck saloon aft	205'	21 $\frac{1}{10}$ '	7 $\frac{5}{10}$ '
278. Diana Vernon, -	1885	Barclay, Curle & Co.,	Barclay, Curle & Co.,	do.	180 $\frac{5}{10}$ '	18 $\frac{1}{10}$ '	7 $\frac{1}{10}$ '
279. Grenadier, - - -	1885	J. & G. Thomson,	J. & G. Thomson,	do.	222 $\frac{9}{10}$ '	23 $\frac{1}{10}$ '	9 $\frac{1}{10}$ '
280. Victoria, - - -	1886	Blackwood & Gordon,	Blackwood & Gordon,	do.	222 $\frac{4}{10}$ '	23 $\frac{1}{10}$ '	8'
281. Madge Wildfire, -	1886	S. M'Knight & Co.,	Hutson & Corbett,	do.	190'	20 $\frac{9}{10}$ '	7 $\frac{1}{10}$ '
282. Fusilier, - - -	1888	M'Arthur, - - -	do.,	do.	202'	21 $\frac{8}{10}$ '	8 $\frac{1}{10}$ '
283. Lucy Ashton, - -	1888	T. Seath & Co., -	do.,	do.	190'	21 $\frac{1}{10}$ '	7 $\frac{2}{10}$ '
284. Caledonia, - - -	1889	John Reid & Co.,	Rankin & Blackmore,	Steel, deck saloon aft	200 $\frac{4}{10}$ '	22 $\frac{1}{10}$ '	7 $\frac{5}{10}$ '
285. Galatea, - - -	1889	Caird & Co., -	Caird & Co., -	do.	230 $\frac{1}{10}$ '	25 $\frac{1}{10}$ '	7 $\frac{5}{10}$ '
286. Marchioness of Breadalbane,	1890	John Reid & Co.,	Rankin & Blackmore,	do.	200 $\frac{4}{10}$ '	22 $\frac{1}{10}$ '	7 $\frac{5}{10}$ '
287. Marchioness of Bute,	1890	do.,	do.,	do.	200 $\frac{4}{10}$ '	22 $\frac{1}{10}$ '	7 $\frac{5}{10}$ '

FROM 'COMET' TO 'KING EDWARD' 373

Ton- nage.	Machinery.			Owners.	Master.	Trade.
	Type.	N.H.P.	Boilers.			
259 ^{6.9} ₁₀₀	Double steeple, surface condensing,	185	2 Haystacks, 50 lbs.,	W. Buchanan, -	A. Gillies, -	Glasgow and Arran
281 ^{8.7} ₁₀₀	Diagonal oscillating, surface condensing,	123	2 Haystacks, 50 lbs.,	The Frith of Clyde Steam Pkt. Co.,	Jas. Williamson,	Helensburgh, Greenock & Arran
241 ⁹ ₈	Double diagonal, jet condensing,	205	2 Haystacks, 50 lbs.,	Young, - N.B.S.P. Co.,	J. M'Kinlay, -	Craigendoran & the Coast
270 ^{9.6} ₁₀₀	Single diagonal, jet condensing,	166	1 Haystack, 45 lbs.,	do.,	D. M'Kinlay, -	Craigendoran & the Coast
243 ^{8.2} ₁₀₀	Single diagonal, surface condensing,	99	1 Haystack, 50 lbs.,	R. & A. Campbell,	R. Campbell, -	Glasgow & Kilmun
192 ^{7.8} ₁₀₀	do.,	103	1 Haystack, 45 lbs.,	Sir G. Harrison, - N.B.S.P. Co.,	Dun. M'Neill, -	Craigendoran & the Coast
371 ^{9.9} ₁₀₀	Compound oscillating,	150	Scotch, - -	D. MacBrayne, -	M'Callum, -	Greenock and Ardishaig, also West Highlands
300 ^{9.1} ₁₀₀	Double diagonal, surface condensing,	160	2 Haystacks, 50 lbs.,	A. Campbell, -	D. Bell, - -	Wemyss Bay and Coast
210 ^{4.1} ₁₀₀	Single diagonal,	95	1 Haystack, 50 lbs.,	R. Campbell, -	P. Campbell, -	Glasgow & Kilmun
251 ^{4.6} ₁₀₀	Single diagonal, surface condensing,	138	1 Haystack, 50 lbs.,	D. MacBrayne, -	Baxter, - -	Greenock and Ardishaig, also West Highlands
271 ^{2.7} ₁₀₀	Single diagonal,	150	1 Haystack, 50 lbs.,	Young, Grierson, etc.,	D. M'Neill, -	Craigendoran & the Coast
244 ^{4.4} ₁₀₀	Tandem compound diagonal,	140	2 Navy, forced draught, 90 lbs.,	The Caledonian Steam Packet Co., Ltd.,	C. Mitchell, -	Gourock & Coast
330 ^{9.6} ₁₀₀	Double diagonal compound,	250	4 Navy, forced draught, 109 lbs.,	do.,	A. M'Pherson, -	Gourock & Coast
246 ^{3.2} ₁₀₀	Tandem compound diagonal,	140	2 Navy, forced draught, 100 lbs.,	do.,	Wm. Gordon, -	Gourock, Wemyss Bay and the Coast
246 ^{3.2} ₁₀₀	do.,	140	2 Navy, forced draught, 100 lbs.,	do.,	D. Bell, - -	Gourock, Wemyss Bay and the Coast

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Name of Steamer.	Year.	Builders of Hull.	Makers of Machinery.	Description and Principal Dimensions of Hull.			
				Type.	Length B.P.	Beam.	Depth Moulded.
288. Duchess of Hamilton,	1890	W. Denny & Bros.,	Denny & Co., -	Steel deck saloon aft, promenade deck full length and width do.	250'	30 $\frac{1}{10}$ '	10'
289. Marchioness of Lorne,	1891	Russell & Co., -	Rankin & Blackmore,	do.	200'	24'	8' 8"
290. Lady Rowena, -	1891	S. M'Knight & Co.,	Hutson & Corbett,	Deck saloons	200 $\frac{5}{10}$ '	21 $\frac{1}{10}$ '	7 $\frac{11}{16}$ '
291. Lord of the Isles, No. 2,	1891	D. & W. Henderson,	D. & W. Henderson,	Iron deck saloons	255 $\frac{5}{10}$ '	25 $\frac{8}{16}$ '	9 $\frac{11}{16}$ '
292. Lady Clare, -	1891	J. M'Arthur & Co.,	Hutson & Corbett	do.	180 $\frac{5}{10}$ '	19 $\frac{3}{10}$ '	6 $\frac{5}{10}$ '
293. Glen Sannox, -	1892	J. & G. Thomson,	J. & G. Thomson,	Steel deck saloons fore & aft, promenade deck full length & width do.	260 $\frac{5}{10}$ '	30 $\frac{1}{10}$ '	10 $\frac{11}{16}$ '
294. Isle of Arran, -	1892	T. B. Seath & Co.,	Wm. King & Co.,	Deck saloons fore and aft	210'	24 $\frac{1}{10}$ '	7 $\frac{4}{16}$ '
295. Mercury, - -	1892	Napier, Shanks & Bell,	D. Rowan & Son,	do.	220 $\frac{5}{10}$ '	26'	9 $\frac{2}{16}$ '
296. Neptune, - -	1892	do.,	do.,	do.	220 $\frac{5}{10}$ '	26'	9 $\frac{2}{16}$ '
297. Minerva, - -	1893	J. & G. Thomson,	J. & G. Thomson,	do.	200'	25'	8 $\frac{3}{16}$ '
298. Glen Rosa, - -	1893	do.,	do.,	do.	200'	25'	8 $\frac{3}{16}$ '
299. Duchess of Rothesay,	1895	do.,	do.,	do.	225 $\frac{5}{10}$ '	26 $\frac{1}{10}$ '	8 $\frac{6}{16}$ '

FROM 'COMET' TO 'KING EDWARD' 375

Ton- nage.	Machinery.			Owners.	Master.	Trade.
	Type.	N.H.P.	Boilers.			
552 $\frac{71}{100}$	Double diagonal compound,	266	3 Navy, forced draught, 120 lbs.,	The Caledonian Steam Packet Co., Ltd.,	Robt. Morrison,	Ardrossan and Arran
294 $\frac{84}{100}$	Double tandem triple,	140	2 Navy, forced draught, 140 lbs.,	do.,	—	Gourock, Wemyss Bay and the Coast
362 $\frac{38}{100}$	Single diagonal,	166	1 Haystack, 55 lbs.,	N.B.S.P. Co.,	—	Craigendran & the Coast
465 $\frac{89}{100}$	Diagonal oscillating,	280	2 Haystacks, 50 lbs.,	Inveraray Steamboat Co.,	D. Downie,	Glasgow & Inveraray
257	Single diagonal,	108	1 Haystack, 55 lbs.,	N.B.S.P. Co.,	A. Carmichael,	Craigendran & the Coast
609 $\frac{68}{100}$	Double diagonal compound,	326	1 Double-ended and 1 Single-ended, 150 lbs.,	G. & S.-W. Railway Co.,	C. M'Gregor,	Ardrossan and Arran
312 $\frac{53}{100}$	Single diagonal, surface condensing,	250	1 Haystack, 60 lbs.,	W. Buchanan,	W. Buchanan,	Glasgow and Arran
378 $\frac{02}{100}$	Double diagonal compound,	240	2 Navy boilers, 3 furnaces in each, 115 lbs.,	G. & S.-W. Railway Coy.,	H. M'Callum,	Greenock & Coast
378 $\frac{02}{100}$	do.,	240	2 Navy boilers, 3 furnaces in each, 115 lbs.,	do.,	Arch. Turner,	Greenock & Coast
306 $\frac{45}{100}$	do.,	240	1 Double-ended 6 furnaces, 150 lbs.,	do.,	Arch. Turner,	Greenock & Coast
306 $\frac{45}{100}$	do.,	240	1 Double-ended 6 furnaces, 150 lbs.,	do.,	Dun. M'Dougall	Greenock & Coast
384 $\frac{88}{100}$	do.,	187	1 Double-ended 6 furnaces, 150 lbs.,	The Caledonian Steam Packet Co., Ltd.,	D. M'Phedron,	Gourock, Wemyss Bay and the Coast

376 THE CLYDE PASSENGER STEAMER

Name of Steamer.	Year.	Builders of Hull.	Makers of Machinery.	Description and Principal Dimensions of Hull.			
				Type.	Length B.P.	Beam.	Depth Moulded.
300. Red Gauntlet, -	1895	Barclay, Curle & Co.,	Barclay, Curle & Co.,	Deck saloons fore and aft	215'	22 $\frac{1}{8}$ '	7 $\frac{1}{4}$ '
301. Dandie Dinmont, No. 2,	1895	A. & J. Inglis, -	A. & J. Inglis, -	do.	195 $\frac{3}{8}$ '	22 $\frac{1}{8}$ '	7 $\frac{1}{4}$ '
302. Glenmore, -	1895	Russell & Co., -	Rankin & Blackmore,	do.	190 $\frac{3}{8}$ '	21 $\frac{1}{8}$ '	7 $\frac{1}{4}$ '
303. Jupiter, -	1896	J. & G. Thomson,	J. & G. Thomson,	do.	230'	28 $\frac{1}{8}$ '	9'
304. Talisman, -	1896	A. & J. Inglis, -	A. & J. Inglis, -	do.	215'	23'	7 $\frac{1}{4}$ '
305. Strathmore, -	1897	Russell & Co., -	Rankin & Blackmore,	do.	200 $\frac{5}{8}$ '	24 $\frac{1}{8}$ '	7' 7"
306. Juno, -	1898	Clydebank Engineering and Shipbuilding Co., Ltd.,	Clydebank Engineering and Shipbuilding Co., Ltd.,	do.	245'	29 $\frac{1}{8}$ '	9 $\frac{7}{16}$ '
307. Kenilworth, -	1898	A. & J. Inglis, -	A. & J. Inglis, -	—	215'	23 $\frac{1}{8}$ '	7 $\frac{6}{16}$ '
308. Waverley, -	1899	do.,	do.,	—	235'	26 $\frac{1}{8}$ '	8 $\frac{1}{16}$ '
309. King Edward, -	1901	Denny & Bros., -	Parson's Marine Steam Turbine Co., Ltd.,	Deck saloons fore and aft	250 $\frac{5}{8}$ '	30 $\frac{1}{8}$ '	10'

FROM 'COMET' TO 'KING EDWARD' 377

Ton- nage.	Machinery.			Owners.	Master.	Trade.
	Type.	N.H.P.	Boilers.			
276 ^{5.6} ₁₀₀	Single diagonal, surface condensing,	187	1 Haystack, 60 lbs.,	North British Steam Packet Co.	Dan. M'Kinlay,	Craigendoran & the Coast
218 ^{6.5} ₁₀₀	do.,	150	1 Haystack, 50 lbs.,	do.,	D. M'Neill,	Craigendoran & the Coast
210 ^{4.8} ₁₀₀	Double diagonal compound,	81	1 Navy, 3 furnaces, 120 lbs.,	John Williamson,	Gillies, -	Glasgow and Kyles
394 ^{3.3} ₁₀₀	Double diagonal compound,	172	1 Double-ended boiler, 6 furnaces, 150 lbs.,	G. & S.-W. Railway Co.,	Alex. Fowler, -	Greenock & Coast
278 ^{8.9} ₁₀₀	Single diagonal, surface condensing	183	1 Haystack, 65 lbs.,	North British Steam Packet Co.	Dan. M'Kinlay,	Craigendoran & the Coast
315 ^{5.3} ₁₀₀	Double diagonal compound,	93	1 Navy boiler, 3 furnaces, 120 lbs.,	John Williamson,	Gillies, -	Glasgow and Kyles
592 ^{0.3} ₁₀₀	do.,	204	1 Double-ended 8 furnaces, 150 lbs.,	G. & S.-W. Railway Co.,	M'Tavish, -	Ayr Excursions
332 ^{0.0} ₁₀₀	Single diagonal, surface condensing,	190	1 Haystack, 65 lbs.,	North British Steam Packet Co.	Peter Dewar, -	Craigendoran
448 ^{5.2} ₁₀₀	Double diagonal compound,	350	1 Haystack, 110 lbs.,	do.,	M. Gillies,	Craigendoran
562 ^{3.7} ₁₀₀	Turbine, five propellers, three shafts,	399	1 Double-ended 8 furnaces, 150 lbs.,	Turbine Syndicate	Fowler, -	Greenock and Campbeltown

List of Railway Officials

THE following is a list of the officials of the three chief Scottish railways in 1901, and it may be of interest to compare the list with the list of officials in 1841 as given on page 86.

CALEDONIAN RAILWAY.

DIRECTORS.

J. C. Buntin, Dunalastair, Perthshire, *Chairman*.
 Sir James King, Bart., Campsie, Glasgow, *Deputy-Chairman*.
 Hugh Brown, Glasgow.
 Lord Newlands, Mauldslee Castle, Lanarkshire.
 Walter J. Houldsworth, Coltness, Wishaw.
 William McEwan, Edinburgh.
 Sir James Thompson, Glasgow.
 The Marquis of Breadalbane, K.G., Taymouth Castle, Aberfeldy.
 Chas. Bine Renshaw, M.P., Barochan, Houston.
 Sir R. Jardine, Bart., Castlemilk, Lockerbie.
 J. C. Bolton, Carbrook, Stirlingshire.
 James Neilson, Orbiston, Bellshill.
 Edward Cox, Cardean, Meikle.
 Hon. G. R. Vernon, Auchans, Kilmarnock.

AUDITORS.

Alex. Young, Accountant, London. | John Graham, C.A., Glasgow.

LIST OF RAILWAY OFFICIALS 379

GENERAL OFFICERS.

General Manager,	William Patrick, 302 Buchanan St., Glasgow.
Secretary,	John Blackburn, ,,
General Superintendent,	Irvine Kempt, ,,
General Goods Manager,	Arch. Hillhouse, ,,
Out-Door Goods Manager and Mineral Supt.,	} Wm. Cook, ,,
Accountant,	J. Drynan, ,,
Traffic Auditor,	James Martin, ,,
Engineer-in-Chief,	{ Donald A. Matheson, M.I.C.E., Buchanan St. Station, Glasgow.
Treasurer,	Wm. Crookston, 302 Buchanan St., Glasgow.
Solicitor,	Henry B. Neave, ,,
Locomotive Superintendent,	J. F. McIntosh, St. Rollox, Glasgow.
Plant Supt. (Carriages),	A. H. Dunlop, 3 Germiston St., Glasgow.
(Wagons),	John Stoddart, ,,
Registrar,	Wm. Thomson, 302 Buchanan St., Glasgow.
Carting Superintendent,	Geo. Robb, 11 Germiston St., Glasgow.
Sack Superintendent,	R. M. F. Watson, 18 Killermont St., Glasg.
Live Stock Superintendent,	Jas. MacCaull, Perth.
Canal Superintendent,	{ Jas. Clapperton, Canal House, Port Dundas, Glasgow.
Stores Superintendent,	Jas. Lorimer, St. Rollox, Glasgow.
Telegraph Superintendent,	W. Stevenson, Glasgow.
Signal Superintendent,	John Steven, 16 Killermont St., Glasgow.
Factor,	Robt. Watson, Glasgow.
Hotel Manager,	Saml. Timbrell.

DISTRICT OFFICERS.

District Traffic Superintendent,	Jas. M. Kinghorn, Edinburgh.
,, ,,	Chas. Smith, Aberdeen.
,, ,,	Wm. Mather, Carlisle.
,, ,,	John Anderson, Oban.
District Superintendent,	Robt. Currer, Glasgow.
,,	J. D. Lang, Perth.
District Goods Manager,	Andrew Robertson, Dundee.
Assist. Dist. Supt. (unattached),	Robert Millar, Glasgow.
Engineer (Northern Division),	Thos. M. Barr, M.I.C.E., Perth.
,, (Southern and Eastern Div.),	W. A. Paterson, M.I.C.E., Edin.
,, (Western Division),	J. H. Anderson, M.I.C.E., Glasg.

BANKERS.

Commercial Bank of Scotland, London, Edinburgh, and Glasgow.

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GLASGOW AND SOUTH-WESTERN RAILWAY.

DIRECTORS.

Patrick T. Caird, Shipbuilder, Greenock, *Chairman*.
Sir James Bell, Bart., Ardoch, Braco, Perthshire, *Deputy-Chairman*.
Henry Tylston Hodgson, Harpenden, Herts.
The Rt. Hon. Sir H. E. Maxwell, Bart., M.P., of Monreith, Wigtownshire.
Benjamin Nicholson, Annan.
James Finlayson, Merchiston, Johnstone.
The Most Hon. the Marquess of Ailsa, Culzean Castle, Maybole.
The Hon. George A. Burns, 30 Jamaica Street, Glasgow.
The Right Hon. the Earl of Glasgow, Kelburne, Fairlie.
Matthew Arthur, 78 Queen Street, Glasgow.

AUDITORS.

Robert C. Mackenzie, C.A., 2 West Regent Street, Glasgow.
John M. MacLeod, C.A., 149 West George Street, Glasgow.

OFFICERS, &c.

General Manager,	David Cooper, St. Enoch Stn., Glasgow.
Secretary and Registrar,	F. H. Gillies, „
Goods Manager,	Henry Evans, „
Superintendent,	C. E. Cockburn, „
Accountant,	Peter Campbell, „
Engineer,	William Melville, „
Marine Superintendent,	Capt. A. Williamson, Greenock.
Locomotive Superintendent,	James Manson, Kilmarnock.
Storekeeper,	Andrew Lindsay, „
Chief of Audit,	William Brown, St. Enoch Stn., Glasgow.
Telegraph Superintendent,	George Russell, „
Solicitors,	Messrs. Maclay, Murray & Spens, Glasg.
Factor,	W. Hutchison, St. Enoch Stn., Glasgow.
Hotel Manager,	J. H. Thomas, „

LIST OF RAILWAY OFFICIALS 381

DISTRICT OFFICERS.

London, St. Pancras Station,	James Maxey.
Manchester, 39B York Street,	David Johnstone.
Middlesbrough, Post Office Buildings,	J. McL. Findlay.
Newcastle-on-Tyne, 10 Neville Street,	G. H. Scott.
Belfast, 47 Queen's Square,	Quintin Young.

BANKERS.

National Bank of Scotland, and Union Bank of Scotland.

NORTH BRITISH RAILWAY.

DIRECTORS.

Sir William Laird, Glasgow, <i>Chairman</i> .	
Henry Grierson, Glasgow, <i>Deputy-Chairman</i> .	
Henry Torrens Anstruther, M.P., Gillingshill, Fife.	Alexander Hay Moncur, Dundee.
Charles Carlow, Leven, Fife.	Alexander Charles Pirie, Aber- deen.
The Earl of Dalkeith, M.P.	Chas. Poston, Stevenage.
John Howard, London.	Alexander Simpson, Glasgow.
John Inglis, LL.D., Glasgow.	George Bradley Wieland, Edin- burgh.
Henry Maciver, Liverpool.	Harry George Younger, Edin- burgh.
Henry Shaw Macpherson, Glas- gow.	

AUDITORS.

A. B. Birkmyre Scott, C.A., Glasgow.
R. C. Mackenzie, C.A., Glasgow.

AUDIT COMMITTEE.

William Weir, of Kildonan, Barrhill, Ayrshire.
James Howden, C.A., Edinburgh.
Sir Mitchell Thomson, Bart., Merchant, Lord Provost of Edinburgh.
Lord Overtoun of Overtoun, Dumbartonshire.
Michael B. Nairn, Inverkeillour, Cupar, Fife.

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GENERAL OFFICERS.

General Manager,	W. F. Jackson, Edinburgh.
Secretary,	Jno. Cathles, „
Assistant Secretary,	Jno. Martin, „
Solicitor,	James Watson, „
Chief Goods Manager,	A. Rutherford, Glasgow.
Outdoor Goods Manager,	J. Stewart, „
Superintendent of Line,	D. Deuchars, Edinburgh.
Engineer in Chief,	James Bell, „
Loco. Superintendent,	Matt. Holmes, Cowlares.
Assist. Locomotive Superintendent,	Robt. Chalmers, „
Stores Superintendent,	J. J. Smith, „
Telegraph „	A. F. Clement, Edinburgh.
Plant „	W. Binnie, Glasgow.
Police „	James Allan, Edinburgh.
Sack „	J. Marshall, „
Canal „	Peter Aitken, „
General Accountant,	Geo. Simpson. „
Audit „	D. Anderson, „
Cashier,	Jno. Stanley, „
Registrar,	George Smith, „

DISTRICT GOODS MANAGER.

James Hay, Edinburgh.

DISTRICT TRAFFIC SUPERINTENDENTS.

Alex. Kidd, Coatbridge.	A. B. Robertson, Dundee.
Wm. Arnott, Burntisland.	Geo. Innes, Fort-William.

DISTRICT SUPERINTENDENTS.

George Cunningham, Glasgow.	Thos. Philip, Carlisle.
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DISTRICT ENGINEERS.

Central District,	Robert Boath.
Western „	John Gray, Glasgow.
Northern „	George Bell, Thornton.
Southern „	D. L. Anderson, Carlisle.

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