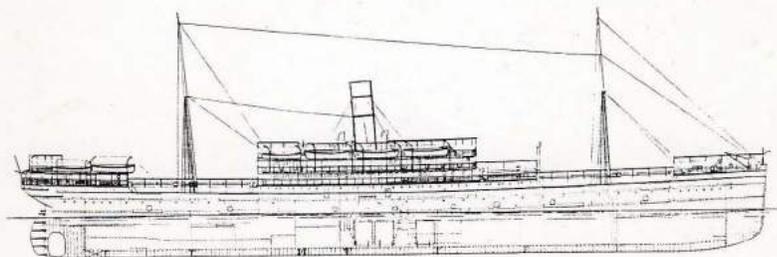
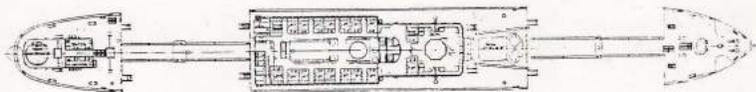


SCOTTISH INDUSTRIAL HISTORY



PROFILE.



BRIDGE DECK PLAN.

B·A·C
Scotland

Business Archives Council of Scotland
Scottish Charity Number SCO 02565

Volume 19

**SCOTTISH
INDUSTRIAL
HISTORY**

Volume 19



Business Archives Council of Scotland
Scottish Charity Number SCO 02565

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Translation of back cover page:

9 April 1889

*A.R. Brown Esq
Director Nippon Yasen Kaisha*

Dear Sir,

In response to your letter, dated March 29 wherein you apply to resign the appointment you now hold in this company, on account of urgent family affairs, and to return to Europe by the end of the present month. I beg to inform you that I duly accept your application. The Department of Communications have also consented to terminate their agreement with you, and the matter has been communicated to me by the Chief of the Marine Bureau in his letter dated the 6th inst. Although to my greatest regret I have only to accede to your application, as I fully appreciate the urgency of your affairs

*Yours faithfully
M. Morioka (President)*

Scottish Industrial History

Volume 19

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The Establishment of Scottish Industrial Estates: Panacea for Unemployment?

**Neil Earnshaw
Johnstone**

The inter-war period was generally one of fluctuating prosperity in the United Kingdom.ⁱ However, Scottish preoccupation with capital industry, combined with the lack of suitable financial facilities – which culminated in capital investment going out of the country to England and abroad, resulted in a failure to cultivate new industry north of the border.ⁱⁱ Heavy engineering in Scotland declined, due firstly to the collapse of the Scottish iron industry in the 1920s in the face of rapidly developing iron industry in England, and then to the industrial disputes in the coal industry leading up to the General Strike of 1926. Several great ironworks closed down, as did some collieries. Government policies resulted in bulk commodity sales, such as coal, suffering as previous overseas customers sought supplies elsewhere. Textiles and shipbuilding suffered in similar ways.ⁱⁱⁱ

The Scottish response to this decline in the nation's heavy industry will be the subject of this article. It will focus mainly on the specific aspect of finding employment for a skilled workforce made idle by economic circumstances. Whilst most industry was concentrated in the central belt, other localities throughout the country will not be overlooked, and reference will be made to them throughout. The article aims to concentrate on the early attempts to tackle the problem in the 1930s and then again after the Second World War and the twenty years following it.

The Depression of the 1930s brought widespread unemployment on an unprecedented scale. In the coal mining industry in the west of Scotland, unemployment was as high as 32% in 1932, gradually falling to 20% in 1937. Engineering and the iron and steel industry showed 43% in 1932. In that year, Clydebank alone had 12,500 unemployed, representing almost one third of Dunbartonshire's total workforce, and this was entirely due to the recession in shipbuilding. At the same time, Greenock had 12,000 unemployed, Motherwell 10,800, and Paisley 8,390 mainly in textiles and engineering. The nadir recorded at the beginning of 1933 indicated a total of 407,284 out of work in Scotland, or 30.3% of the workforce. The city of Glasgow recorded

136,000 of these, the Govan shipyards and the Springburn locomotive sheds being silent.^{ivv}

The build-up to the Second World War, and the war itself, assisted in reducing unemployment as a large proportion of the able-bodied workforce was out of the country during 1939-1945 on war service. Most of those who remained, both men and women, were actively engaged in munitions, armaments and similar reserved occupations. Thereafter, as other parts of the UK experienced buoyant economic recovery, the west of Scotland did not.

Comparative unemployment figures for major industrial towns in the central belt highlight the problem that still existed in the 1950s (Table 1).

Whilst the foregoing figures serve to show a gradual rise in unemployment and, concomitantly, a fall in those in employment, they indicate a general trend that also takes into account seasonal variations or fluctuations due to unforeseen circumstances, as well as periodic recessions. These occasionally brought short-time working to textile towns like Paisley, the effects mainly being felt by female workers. As these Ministry of Labour statistics were published monthly, it would have been possible to produce a greater breakdown of specific fluctuations. However, for the purposes of this article, it was not considered necessary to do so. Suffice to state that, on 10 December 1951, total Scottish unemployment stood at 60,247 and, a mere month later, it had risen to exactly 70,000. Glasgow, including Rutherglen, showed an increase of 3,311.^{vi} In all areas, the unemployment figures for boys and girls during this month doubled and those of Clydebank trebled, an indication, surely, of seasonal fluctuation. Likewise, in December 1957, the total Scottish unemployment figure was 62,782, whereas a month later it had risen to 72,969.^{vii} In both instances and in the intervening years, the figures tended to rise steadily monthly up to March, then drop in the summer, rising again from August to November. By 1958, there was no seasonal drop at Christmas, and by January 1959, the Scottish total had risen sharply to 116,510, almost 25% of this number being recorded in Glasgow.^{viii}

At the beginning of 1963, unemployment had risen alarmingly in some of the above areas. In Greenock, the total was 3,021; in Clydebank 1,867, all in the shipyards; in Motherwell and Wishaw 3,673; and Glasgow well over 32,000, including 4,315 at

Table 1 Unemployment Statistics for Scotland, 1952 and 1958

<u>Jan 1952</u>	Clydebank	Glasgow (inc. Rutherglen)	Greenock	Motherwell and Wishaw	Paisley	All Scotland
Men (18+ yrs)	301	13 610	1 405	1 219	773	42 497
Boys & Girls	34	1 343	217	314	83	4 953
Women (18+ yrs)	181	5 928	1 296	856	374	22 550
TOTALS	516	20 881	2 918	2 389	1 230	70 000
<u>Dec 1958</u>						
Men (18+ yrs)	144	19 184	1 540	2 233	1 331	64 073
Boys & Girls	58	1 181	221	261	94	5 579
Women (18+ yrs)	348	5 138	1 046	1 074	858	25 888
TOTALS	1 550	25 503	2 807	3 568	2 283	95 540

Unemployment figures are for those registered at Employment Exchanges and Youth Employment Offices.

Source: Ministry of Labour Gazette, Vol. LX No. 2, p. 59 and Vol LXXVII, p. 18.

Springburn and 5,126 at Parkhead, an engineering district in the east of the city.^{ix} At this time, the government produced employment figures in its eight Scottish Growth Areas. In these eight localities in the year 1963-4, total employment rose by 13,510, or 4.6%, with the figure for males up by 5,820 (2.9%), and for females up by 7,690 (8.2%). Only two of the areas showed a drop in employment, Central Fife and Glenrothes being down by 600 in total (-820 males, +220 females), and Vale of Leven down by 1,260 (-1,240 males and -20 females). The other six areas had increased employment, the most notable being North Lanarkshire, which showed an increase over the year of 9,940. It must be recognised, however, that the figures were estimated and not actual. The total number of workers estimated to be in work in those areas in 1964 were as undernoted:^x

North Lanarkshire	118,870
East Kilbride	13,560
Cumbernauld	5,340
Livingston	30,950
Irvine	11,060
Falkirk & Grangemouth	47,730
Central Fife & Glenrothes	48,730
Vale of Leven	16,980

In the midst of this depressed state of industry, the Scottish spirit of enterprise was not destroyed. Top Scottish businessmen recognised the problem before the government grasped the full consequences of mass unemployment.^{xi} Various bodies were set up to investigate the situation, most notably the Scottish Development Council which, in 1931, aimed to stimulate Scottish trade and industry. It was formed by a group of leading Scots from all walks of life. A principal objective was to broaden manufacturing by attracting new light industry in order to build up the Scottish economy. Following shortly upon this, a Board of Trade survey resulted in the Special Areas (Development and Improvement) Act 1934, which scheduled certain 'distressed areas' in Scotland, England and Wales for assistance. The city of Glasgow was excluded from this. Two years later, a Scottish Economic Committee was formed under the chairmanship of Lord Bilsland. It was sponsored by the Scottish Development Council and supported by the Secretary of State for Scotland. It reported on the need for new factories to house light industry, similar to the industrial estates already created by private enterprise in England, instead of trying to utilise the

many old derelict factory buildings lying empty within Scottish industrial areas. In 1937, an industrial estates company was formed, government finance secured and land acquired at Hillington, south-west of Glasgow. The company planned to build twenty-five small factories in the first year. Within seven months, seventy firms had become tenants. Two years later three small estates were acquired in Lanarkshire in the hard-hit mining areas of Carfin, Chapelhall and Larkhall. This development was entrusted to the Hillington company which acted in this case, under the title of Lanarkshire Industrial Estates Ltd..^{xii} Also in 1939 work began on a great 'shadow factory' at Hillington by the Air Ministry to house the Scottish Division of Rolls Royce Ltd., this factory covered an area of two million square feet (just over 186,000 square metres) and would employ 25,000 workers. At the outbreak of war, ninety firms were in production in Scottish industrial estate factories..^{xiii}

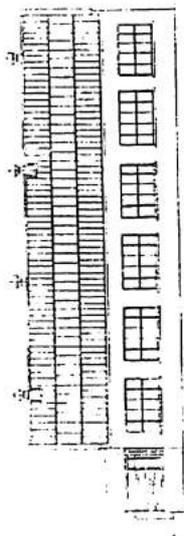
Following the war, in 1945, the Distribution of Industry Act gave a new impetus to development. The Board of Trade, a government body, was authorised to acquire new land for the provision of new factories. Powers were given to erect other buildings such as houses for key workers who might have to be transferred into a district where the local labour force lacked the specialised skills necessary for new industry to get into production.

The existing industrial estates in Scotland, at Hillington and in Lanarkshire, now passed into government ownership under the control of the Board of Trade and the management of Scottish Industrial Estates Ltd. (SIE), the company which had previously set up at Hillington. The Distribution of Industry Act listed specific Scottish districts as Development Areas. These included the counties of Dumbarton, Lanark and Renfrew; the cities of Glasgow and Dundee; sixteen parishes within Ayrshire and part of the Royal Burgh of Irvine; the northern part of the parish of Sanquhar in the county of Dumfries; seven parishes in Stirlingshire; eight parishes in West Lothian; three parishes in Mid-Lothian and part of the Royal Burgh of Linlithgow; several parishes within the county of Inverness; and many smaller ones north of that in the county of Ross and Cromarty..^{xiv} Notably, those parishes in Stirlingshire, West Lothian, Mid-Lothian, Linlithgow and Sanquhar, as well as in Lanarkshire, were in former mining districts, and those at Inverness and further north covered populations engaged in fishing and agriculture.

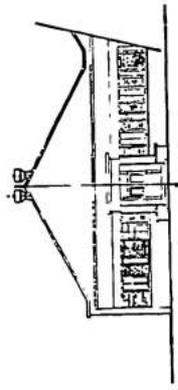
No major changes in the administration of industrial estates took place until 1960, when the Local Employment Act came into force. Certain provisions of the previous Acts had been deemed by government to be inappropriate to conditions prevailing at that time, so instead of further amending the Distribution of Industry Act, these were repealed and replaced with a single statute. The assets of Scottish Industrial Estates Ltd. were transferred to the Industrial Estates Management Corporation of Scotland as factory building agents for the Board of Trade and managers of leased premises. One of the provisions of this new Act was that factories built by Industrial Estates Management could be sold by the Board of Trade to approved purchasers.^{xv} The new organisation had powers to erect factories over a wider area than its predecessor did. The additional areas were: the counties of Argyll; Caithness; Sutherland; Orkney and Zetland (sic); the city of Aberdeen and eight areas covered by Ministry of Labour local offices in the north-east of Scotland; four such areas in Fife; Stranraer in Wigtonshire; and areas with signed agreements to take Glasgow overspill population.^{xvi}

It has to be appreciated that, at the outset in 1937, it was not really known what type of modern factory would most suit the needs of prospective tenants. Thus, a standard factory was designed by the architect E G Wylie of the firm Wylie, Shanks and Wylie, which was to have a long association with the estates company. The soundness of Wylie's original plan was such that it was still in use twenty-one years on and later.^{xvii} Most factory buildings on the estates were single-storeyed and built in blocks comprising a number of standard factory units each of 5,000 square feet, suitably modified internally so that maximum space was utilised (see Diagram). There was also the popular 'Nest' factory, or the small man's workshop with an area of only 1,400 square feet.^{xviii} By 1961, an engineering block had been added to the list. Its design included a high roof and crane facilities, and its general size was determined by its location and by the tenant's special requirements. The standard factory had two types of roof to meet lighting requirements of specific industries. There was the ridge roof, adequate for most requirements, and the north light type of roof especially suitable for companies engaged in textile production.^{xix}

During the war years, communal canteens operated by the estates company were confined to Hillington estate, where a round-the-clock service of meals was provided

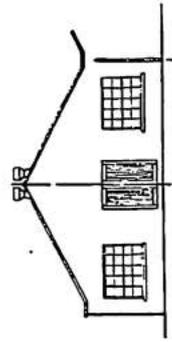


SIDE ELEVATION



FRONT ELEVATION

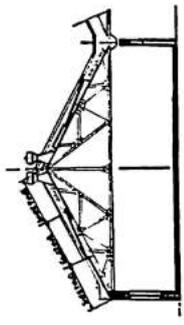
**STANDARD FACTORY
OF 5,000 SQ. FEET**



BACK ELEVATION



PLAN



SECTION

for workers engaged on vital production. In 1949, a new catering department was established at Hillington, operating three canteens on that estate together with eight on other estates. By 1961, twenty-one canteens were employing 500 catering personnel. In the average week, 40,000 main and snack meals were served, together with 75,000 light meals. Vegetables and fruit used on the canteens were supplied by the estates' Lands and Gardens Department from the walled garden nursery at Vale of Leven industrial estate. Cut flowers and pot plants were grown all year round for canteen decoration, not only at normal mealtimes but also for the many social functions held within the canteens.^{xx}

It has already been stated that, at the outset in 1937, twenty-five small factories were planned but within seven months seventy companies had become tenants. Fifteen years later, the total number of tenants on all twenty-one estates had risen to three hundred and fifty, employing over 65,000 people. Identifying the location of these estates is an important marker in gauging whether the new factories were being erected in areas of greatest unemployment.

HILLINGTON and NORTH CARDONALD extension, was situated four miles west of Glasgow City Centre, half a mile from the docks. It was on the main road and railway routes for Glasgow, Paisley and Greenock, and had its own passenger station. Renfrew airport was in close proximity.

BLANTYRE, ten miles south-east of Glasgow, drew its labour from the towns of Blantyre, Burnbank and Hamilton, whose combined population exceeded 67,000.

CAIRD'S ESTATE was in the centre of Greenock. Two factories had been erected on a cleared shipyard site.

CARFIN, twelve miles east of Glasgow, served Carfin, New Stevenston, Holytown and Motherwell, with a total population of 90,000.

CARNTYNE, in the east end of Glasgow, was located near to a large scheme housing estate.

CHAPELHALL, twelve miles east of Glasgow, was a former mining village. Airdrie, Coatbridge and Motherwell were all located a few miles radius of the estate.

COATBRIDGE was near Airdrie and Motherwell, and had two factories engaged in engineering.

CRAIGIE, three miles east of Dundee City centre, was half a mile from the port, and was near several large housing developments. The estate was a former government factory which was adapted for use by two tenants, one being the watch manufacturer, Timex.

CRAIGTON was the former Cardonald Ordnance Factory built before the First World War, and housed eleven tenants.

DUNDEE lay north of the city, with its population of 178,000, on the main Perth road two miles from the port. There were thirteen tenants on the estate.

EAST KILBRIDE came under construction in conjunction with the building of the New Town. The estate eventually extended over 40 acres and had one tenant, Rolls Royce, in 1953.

KILMARNOCK, in Ayrshire, lay in close proximity to Prestwick Airport.

KILWINNING lay ten miles north-west of Kilmarnock near the towns of Dalry and Irvine.

LARKHALL was situated seventeen miles south-east of Glasgow and served Larkhall and Hamilton, with a combined population of 51,000.

NEWHOUSE was the largest of the Lanarkshire estates, thirteen miles from Glasgow and five miles from Motherwell. The local

populations of nearby Newarthill, Bellshill and Holyton totalled 26,000.

PORT GLASGOW lay seventeen miles west of Glasgow and one mile from the docks. It served Port Glasgow, with a population of 21,000, and Greenock, with a population of 78,000.

QUEENSLIE lay four miles east of Glasgow city centre and was the largest Glasgow estate, its twenty-five tenants serving the districts of Baillieston, Garrowhill, Springboig, Camtyne, Shettleston, Parkhead, Riddrie, and Millerston.

THORNLIEBANK was situated five miles south-east of Glasgow. The Glasgow Corporation tramway service passed the estate in 1953 and the twelve tenants drew labour from Thornliebank, Barrhead and the south Glasgow suburbs of Pollockshaws, Camwadic, Pollock, and Nitshill.

Finally, VALE OF LEVEN lay sixteen miles south-west of Glasgow and just two miles north of Dumbarton, drawing labour from Dumbarton, Renton, Alexandria, Balloch, Bonhill, and Jamestown. A special feature of this estate was the Strathleven Mansion House, a listed building with its walled garden nursery. The estate had only four tenants but the factory area covered a total of 400,000 square feet.^{xxi}

The number of tenants and the diversity of the goods manufactured are far too exhaustive to warrant inclusion in this article. Suffice to indicate, at this stage, some of the tenants in 1953 were occupying new factories on individual sites and some ex-government factories – which tended to be the larger premises.^{xxii}

AEI. Lamp and Lighting Co. Ltd., a tubular electric lamp manufacturer, had a SIE factory at Buckie in the north-east of Scotland. The Head Office was in Leicester.

Cleveland Twist Drill (GB) Ltd., manufacturer of cutting tools, was in a factory in Peterhead, again in the north-east. This was an American company.

The Goodyear Tyre & Rubber Co. Ltd. had a tyre manufacturing plant in a factory in the west of Glasgow. Its headquarters were in Wolverhampton.

IBM United Kingdom Ltd., manufacturer of electric typewriters and punched card accounting machines, had a factory in a rural setting in the Spango Valley on the outskirts of Greenock. Its registered office was in London, but it was an American company.

Joy-Sullivan Ltd. manufactured electric coal and quarry cutting machinery at its Greenock factory.

Pye Ltd. manufactured radio and electric equipment at Airdrie.

Salts (Saltaire) Ltd., manufacturer of worsted cloth, was in a factory in Uddingston in Lanarkshire. Its Head Office was in West Yorkshire.

A. F. Stoddard & Co. Ltd., carpet manufacturer, had a new factory at its Elderslie site west of Paisley, but it was an old established firm and still used many of the old mill buildings adjacent.

Thomas White & Sons Ltd. manufactured woodworking machinery at Paisley.

The above tenants were all in new factories on individual sites. Those listed below were located in ex-government factories.

The Goodyear Tyre & Rubber Company Ltd. was located at Carfin, where the premises were used to manufacture re-mould tyres.

Hoover (Electric Motors) Ltd. was situated at Cambuslang, south of Glasgow, and manufactured electric motors and vacuum cleaners.

Philips Ltd. in Hamilton was engaged in the manufacture of electric lamps, dry shavers and electric components. The main works were situated at Eindhoven in the Netherlands.

Pressed Steel Co. Ltd. at Linwood, west of Paisley, manufactured passenger freight railway rolling stock for British and overseas railways.

United Thread Mills Ltd. was situated at Broxburn, Mid-Lothian, and manufactured sewing thread as part of the J & P Coats Group.

Weir Housing Corporation at Coatbridge, Lanarkshire, was a builder, civil engineering and public works contractor making kitchen fitments, joinery timbers and fitments for electricity and plumbing installations.

Industrial estates were mainly located on the periphery of town boundaries away from slum localities, residential and commercial properties, thus creating a healthy working environment. This had increased slightly by 1958, the main addition being a new estate with four tenants at Inverness in 1956. By 1961, the total area built was just less than 20 million square feet.^{xxiii}

The diversification of products manufactured, even on small estates, was such as to ensure that some factories were working at full capacity when others adjacent were experiencing depressed trade conditions. This was a departure from pre-war days when many localities were hard-hit when the sole industry of the area was in decline, a stark example being coal mining. A general product range of manufacturers on the estates included engineering, electrical engineering, clothing, food products, furniture and furnishings, insulations, paints and chemicals, pharmaceuticals, plastic and leather goods, pottery, printing and paper, textiles and several miscellaneous manufactures as well as the services of banks, employment exchanges and post offices.^{xxiv}

A series of case studies illustrates the impact of major industry after the early days of 1937. At this time, the company Filling Machines Ltd., which specialised in automated production line machinery for filling bottles and packets, became the first tenant at Hillington.^{xxv} The decision to locate Rolls Royce at Hillington instead of in the English Midlands was taken in order to disperse vital industry throughout the country as war threatened. This was an innovative and challenging step, as it was the first time that large scale precision engineering had been introduced into the heavy industrial area of the west of Scotland. Within five months, the first workshop had been erected and the factory was in production. By September 1941, twenty-one workshops at Hillington were occupied. This factory was one of strategic importance

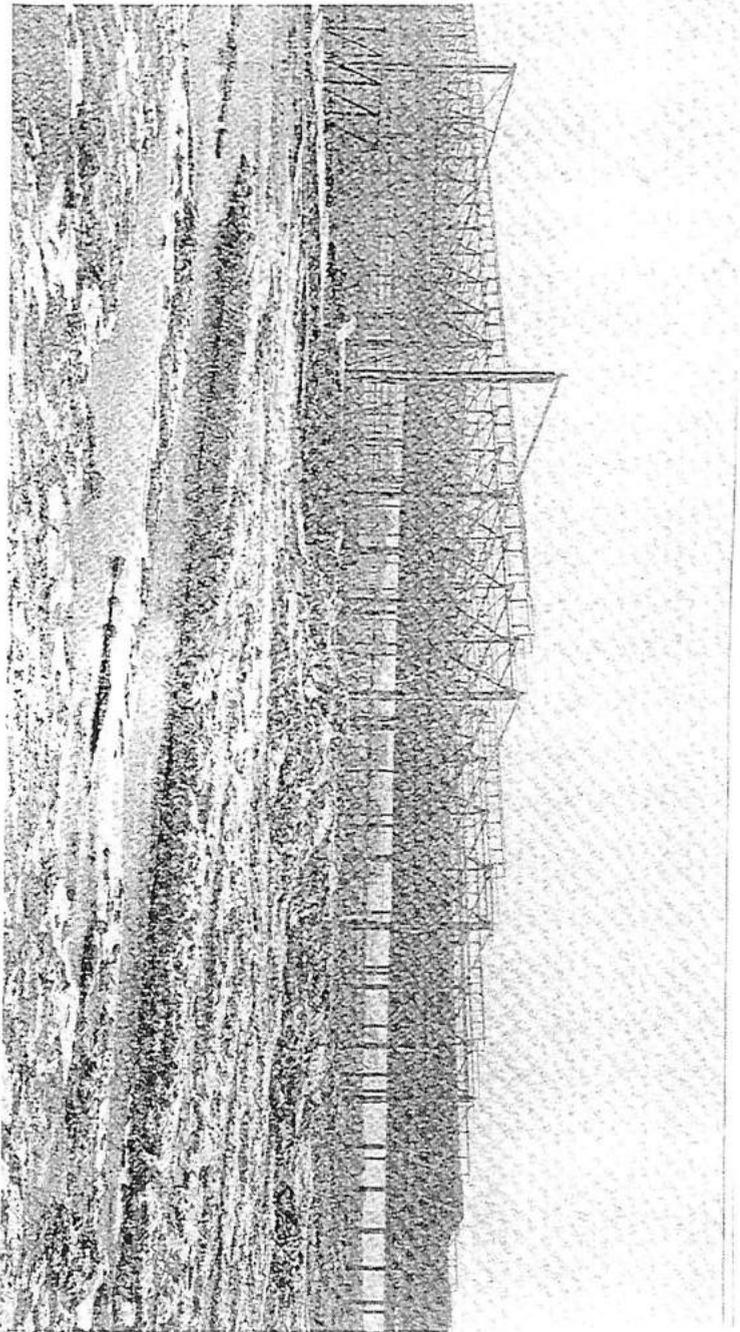


Figure 1. The Rolls-Royce factory under construction at Hillington 1939-40. From *Pathway to Prosperity* Scottish Industrial Estates (1958)

in the manufacture and repair of all aircraft fighter engines during the war and the manufacture of Merlin engines. At the height of its wartime effort, the factory was manufacturing and maintaining three hundred Merlin engines each week. Labour was readily available, although training was necessary. In the first year, 4,330 personnel were trained. By September 1941, the Hillington factory employed 16,000 personnel, 41% of whom were women and girls, many of whom had come from domestic service or retail shop work and were attracted to the job not solely by the high wages but also by a sense of duty. A year later on, women represented 54% of the total workforce of 25,000 at the Hillington factory. After the war these numbers fell considerably. In 1947, Rolls Royce took over the Hillington factory, instead of operating it on behalf of the Ministry of Supply. Although the workforce had been reduced to a mere 4,000, highly skilled operatives could now be recruited locally when the factory was chosen to re-equip the Royal Air Force with Avons and other jet engines to be installed in the new Canberra twin-engined light bomber. While Hillington re-tooled for jet-engines, smaller factories were taken over at Larkhall and Blantyre estates to continue piston overhaul work. A small factory at North Cardonald was taken over for the manufacture of jet engine compressor blades. However, with the Ministry of Supply pressurising Rolls Royce for increased output, SIE offered to erect a factory at East Kilbride, then changing from a village of 2,400 people to a New Town of an anticipated 45,000 population. Site preparation began in 1951, the first workshop was erected a year later, and the first engine despatched in February 1953. Thereafter the work of the Scottish factories expanded considerably, exporting new engines and components to over forty countries for both military and civil aviation. A considerable workforce was required to achieve this.

A new Scottish tradition was started in 1945 when representatives of the American firm National Cash Register (Manufacturing) Ltd. chose to build their own factory on land on the Kingsway, Dundee, bought from Dundee Corporation. Such was its success that a second factory was utilised, this time built by SIE on Dundee Industrial Estate. By 1957, that company was exporting £2 million worth of cash registers from its Dundee plant, products, which pre-war, were traditionally American. Much of the success was due to a skilled and reliable local workforce and the company's business acumen in foreseeing the advantages of being in easy reach of new markets. Exports

earned much needed dollars at that time, thus boosting both the Scottish and UK economy.

Other office machinery manufacturers soon followed. Remington Rand Ltd. moved into Hillington in 1947. Ten years later, its exports of typewriters to dollar areas were up by 90%, to a total value of just over £1 million. In 1948, another typewriter manufacturer, the Italian company Olivetti, which already had several overseas factories, moved into Queenslie Industrial Estate in south-east Glasgow. Between 1953 and 1956, the factory increased its production by 300%, its major market being Australia.

Burroughs Adding Machines, which had operated in Nottingham for the previous fifty years, moved to a large factory at Vale of Leven, an area which, in the 1930s, had 65% of its workforce unemployed due to the collapse of calico printing. Unskilled labour was trained to do precision work and, within a year, the factory was producing fifty adding machines daily. Exports to sixty countries were trebled in seven years so that by 1957 they totalled £2.6 million. A further factory, built by the company itself, was erected at Cumbernauld New Town at a cost of £10 million.

In 1951, IBM United Kingdom Ltd., with a British staff and a strong British shareholding, established itself at Greenock, the locality with the highest unemployment in Scotland. By 1958, over 1,000 personnel were employed there in the manufacture of electronic calculators, electric typewriters and punched card machines, with an export value of £1.5 million. Two years later, this had risen to £2.5 million.

In 1957, the five companies in SIE factories produced £10 million worth of office machinery, representing half of the British total. This provided work for 9,000 employees, work which had not existed twelve years before hand.

Smith Clocks and Watches Ltd. were the first makers of mechanical alarm clocks at a factory on Carfin Industrial Estate. However, lacking space for their flow production techniques, the firm eventually moved to a larger factory at Gowthrapple near Wishaw, establishing what was claimed at the time to be the most highly mechanised factory of its kind in the world. In 1958, it was producing two million clocks annually and employed 1,000 workers. The American concern, Westclox Ltd., followed with

another alarm clock factory at Vale of Leven, their output being a little lower than that of Smith's. Westclox's premises at Vale of Leven were later extended so that the company could produce synchronous electric clocks and non-jewelled wrist watches.

Timex Ltd., a wholly-owned subsidiary of the US Time Corporation, had an important factory on the outskirts of Dundee mass-producing popular non-jewelled wrist watches. A feature of the modern factory there was that the assembly plant relied entirely on bench lighting, whereas previous normal practice would have been for a watch factory to have maximum natural light.

Synthetic Jewels Ltd., part of the Smith's group, was the only firm specialising in the manufacture of synthetic ruby horological jewels in a factory on the Carfin estate.

Prior to 1939, continental Europe held a monopoly in the manufacture of alarm clocks, watches and timers. This was to the early detriment of the UK war effort, throwing the nation into strategic disadvantage, with Germany specialising in precision instruments. Before the end of 1945, this had been remedied and much capital invested in the industry and, by 1958, the four Scottish factories were producing 750,000 clocks per year. The total British export value exceeded £2 million per year and, by supplying the home market, was saving foreign currency which would otherwise have had to be spent on imports. However, greater automation was at that time being considered to counter the risk of unrestricted competition under the European Free Trade plan.

Off-the-highway earth moving equipment manufacture began in Scotland in 1950 when Euclid (Great Britain) Ltd., a subsidiary of the General Motors Corporation, moved into a factory on Newhouse Industrial Estate. The move was initially done to serve the dollar-short British home market and other Sterling area countries. Euclid soon found that it could build British machines of equal quality to those made in America, but cheaper, and was thus able to compete successfully with the parent company in all world markets. Britain thus saved dollars and increased exports. It also earned dollars by exporting to Canada and other dollar countries. Six years after establishing at Newhouse, Euclid expanded by acquiring the Peterhead Gear Manufacturing Co., whose factory was located on the Peterhead Industrial Estate in Aberdeenshire. By 1958, the Newhouse factory covered an area of 400,000 square

feet, and Peterhead 60,000 square feet. Its product range was, in the main, large rubber tyred dump trucks, scrapers and crawler tractors.

The most prominent producer of crawler tractors was the Caterpillar Tractor Company of Illinois, USA, which set up a British subsidiary in Scotland 1955, five years after establishing a spare parts manufacturing unit in England. The Scottish factory at Tannochside in Lanarkshire became the British headquarters of the company. It covered an area of 600,000 square feet and was in full production in 1958.

Hyster Ltd., another American company, manufacturing towing winches and ancillary tractor equipment, moved into a 16,000 square foot factory at Hillington, from there, it distributed world-wide.

Yet another American company, Cummins Diesel Engine Co. Ltd. of Indiana, established a factory at Shotts in Lanarkshire in 1957. Although Cummins served many industries outwith earth-moving equipment, Euclid was one of its biggest customers. This is a fine example demonstrating how new industry in a locality attracts auxiliary industry. The potential for further companies and expanded business was considered highly promising in 1958, as underdeveloped countries – for whom American prices had previously been out of reach – could then obtain low cost equipment for developing their infrastructure. The 'knock-on' effect was that the Scottish steel and casting industries could escalate. Wild claims were being made that within ten years as many as 75,000 people could be employed in the earth-moving industry in Scotland.^{xxvi}

It will be noted from the foregoing case studies that the preponderance of new industry after 1945 was due to the influx of American companies on to the industrial estates in Scotland. In fact, 80% of American companies which had established plants in Britain by 1952 had come to Scotland.^{xxvii} This may have been due to the generous leasing terms given to them by the Board of Trade – terms not available to native Scottish companies. In turn, this goes some way to explaining the ability of these incoming firms to pay higher wages than existing Scottish companies and draw away their skilled labour force, to the detriment of indigenous industry.

Thus, the original ideal of finding work for the unemployed only was not always rigidly followed. It has been shown, nevertheless, that much employment was

provided, initially at Hillington and in Lanarkshire during the war years, and thereafter over a wider area. The policy of providing small estates in areas of industrial decline and closure attracted diverse light industry to these localities. Men who had previously felt that they were without future work eagerly trained for the new skills required. The incoming tenants were high in their praise of the Scottish workforce at that time, a fact amply borne out by the factory extensions required by such firms as National Cash Register Ltd., Burroughs Adding Machines Ltd., and Rolls Royce. By 1960, two major new developments were in hand, British Motor Corporation's vehicle factory at Bathgate, and the proposed Rootes car factory under construction at Linwood in Renfrewshire. Changing government legislation had made this possible. It would be the task of the newly formed Industrial Estates Management Corporation for Scotland, under the chairmanship of Sir Robert McLean,^{xxxviii} and the guidance of its vastly experienced general manager, Brigadier Muir,^{xxxix} to ensure that the standards set by their predecessors^{xxx} in Scottish Industrial Estates did not fail the Scottish nation.^{xxxi}

ⁱ W H B Court, *A Concise Economic History of Britain* (1976), pp.335-341

ⁱⁱ Tony Dickson ed., *Scottish Capitalism* (1980), p. 284

ⁱⁱⁱ A Slaven, *The Development of the West of Scotland 1750-1960* (1975), pp. 183-209; Peter L Payne, *Growth and Contraction*

^{iv} Slaven, *Development of the West of Scotland*, p. 199

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^{vi} *Ministry of Labour Gazette*[Hereafter *MLG*], Vol. LX No. 1 and LX No. 2

^{vii} *MLG*, Vol. LXVI No. 1 and LXVI No. 2

^{viii} *MLG*, Vol. LXVII, p. 65

^{ix} Collated from unpublished monthly unemployment records researched at Manpower Services Commission offices, Edinburgh, in January 1988, under the supervision of Mrs Elizabeth Gribben whose assistance is herewith acknowledged.

^x Parliamentary Papers, CMND 2440, 'Development and Growth in Scotland 1963-64' (1964)

^{xi} Slaven, *The Development of the West of Scotland*, p. 202

^{xii} Slaven, *The Development of the West of Scotland*, pp. 203-5; W. C. Kirkwood, *Scottish Industrial Estates Handbook* (1953), pp. 25-30

^{xiii} Kirkwood, *Scottish Industrial Estates Handbook*, p. 30

^{xiv} Kirkwood, *Scottish Industrial Estates Handbook*, pp. 30-33

^{xv} *Industrial Estates Management Corporation for Scotland Handbook* [hereafter *IEMCS*](1961), pp. 20-1

^{xvi} *IEMCS* (1961), p. 35

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- ^{xxvii} *SIE Ltd Handbook* (1958), p. 29
- ^{xxviii} *SIE Ltd. Handbook* (1953), p. 34
- ^{xxix} *IEMCS* p. 28
- ^{xxx} *SIE Ltd. Handbook* (1953), p. 40; *IEMCS Handbook*, (1961), pp. 38-42
- ^{xxxi} *SIE Ltd. Handbook* (1953), pp. 62-90
- ^{xxxii} *SIE Ltd. Handbook* (1953), pp. 90-3
- ^{xxxiii} *IEMCS Handbook*, (1961), p. 37
- ^{xxxiv} *SIE Ltd. Handbook* (1958), pp. 103-107
- ^{xxxv} *SIE Ltd. Handbook* (1958), p. 122
- ^{xxxvi} *SIE Ltd. Handbook* (1958), pp. 46-71
- ^{xxxvii} *SIE Ltd. Handbook* (1953), p. 30
- ^{xxxviii} *IEMCS Handbook* (1961), p. 16
- ^{xxxix} *IEMCS Handbook* (1961), pp. 26-7; Eric R Delderfield, *The Lynmouth Flood Disaster* (1953), pp. 111 - 138
- ^{xl} *SIE Ltd. Handbook* (1953), pp.21-2, pp. 25-30
- ^{xli} Parliamentary Papers, CMND 2864, 'The Scottish Economy 1965-1970: Plan for Expansion', (1966)

Albert Brown and the Development of Trade between Clydeside and Japan

Margaret A Whitehead

Albert Brown, who became the first Honorary Consul for Japan at Glasgow in 1889, was a pioneer of trade with Japan in the later nineteenth century. He thereby helped to carry a stage further the development of trade with the East, which had begun earlier in the century. Direct trade between the Clydeside area and the East had been permitted only after the Napoleonic Wars with the ending of the East India Company's monopoly of Indian trade. Until then all trade had to be conducted through London. Glasgow merchants played an important part in the campaign to bring this about, Kirkman Finlay, the cotton manufacturer, most prominent among them.¹ Cotton was then the chief industry of the Glasgow region and it was Finlay who sent the first ship, *the Earl of Buckinghamshire*, direct from the Clyde to Calcutta in 1816. Glasgow cotton manufacturers led by Finlay again took part in a second campaign in the 1830s to end the East India Company's remaining monopoly of trade with China and the Far East which finally achieved success in 1833. By the 1850s Glasgow exported direct to the East vast quantities of cotton goods, coal and iron and other manufactured goods and imported a wide range of Eastern produce, including tea and silk from China. Agencies were set up in a range of ports in the East extending from Mauritius in the Indian Ocean to Manila in the Pacific – anywhere in the world where there were opportunities for trade – but not to Japan.

For centuries Japan had adopted a policy of isolation, excluding totally all Western trade and influence. The Chinese authorities had also been suspicious of the West fearing, especially, they claimed, the effects of opium imported from India to China by Western traders. As this trade escalated after 1833, they raised obstacles that culminated in the Opium Wars in the early 1840s and ended with the acquisition by Britain of Hong Kong as well as access to other Chinese ports. The firm of Jardine-Matheson's benefited especially from these developments. From the days of the East India Company, Scots had played an important part in the eastern trade and several, like Jardine and Matheson, had on occasion, found ways of circumventing restrictions which they considered in restraint of their trade. The methods of another Scot,

Thomas Glover, credited with being the pioneer of Japanese development, were likewise not always perhaps, strictly legal or moral, in the early years at least of his career in that country.ⁱⁱ

By the 1850s the great naval powers wanted coaling, watering and trading facilities for their ships in Japan. When Commodore Perry of the US Navy and his squadron visited Yokohama in 1853 and returned the following year the Japanese realised that they had to open up the country voluntarily or have it opened by force. Technically they were too backward to resist. By 1859 three 'Treaty Ports' – Nagasaki, Yokohama and Hakodate were opened to foreign traders.ⁱⁱⁱ

Among the China-based traders who could not wait until the official date was a Scot, Kenneth Ross MacKenzie, sent out appropriately enough, by Jardine-Matheson's Shanghai office in 1858.^{iv} He quickly made a small fortune from exporting seaweed to China and silk to Europe. In 1859 he was joined by Glover, also sent out from Shanghai by Jardine-Matheson's. Quickly established as their agent in Nagasaki, Glover also prospered by engaging in trade, exporting a range of Japanese produce.

By then some of the Japanese leaders were aware that they must learn from the West and catch up as quickly as possible with western technology – although others were not. It was Glover who saw the potential for future trade in supplying the former group with the weapons and ships they required to gain supremacy and control of Japanese policy. Glover was, in fact, willing to sell these commodities to any of the various factions which divided Japan at that time – if they were willing to pay for them. It was a risky but profitable venture. He already had contacts at home in Aberdeen in shipping and shipbuilding and made further contacts in Britain and the Far East with suppliers of arms. With his help, the rebel 'Samurai' were able by 1867 to overthrow the Shogun and restore the Emperor Meiji who, under their influence, would promote the rapid industrialisation and modernisation of Japan. The merchant dealing in quick profit war materials set about assisting them in realising their dream.^v

Many of his ventures brought long-term benefits to the Japanese. He imported the first steam locomotive into Japan, from Shanghai; he developed a coalmine near Nagasaki, perhaps his biggest single contribution to the economic development of Japan.^{vi} By 1875 Japanese coal and Formosa coal excluded British and Australian

coal from the Shanghai market; he built a dock, another leap forward, and he supplied warships to the new Imperial Navy. Many of these developments brought benefits to firms in Scotland. Mining equipment, for example, came from Glasgow; the dock constructed in Japan was actually built at Hall, Russell & Company's yard at Aberdeen and many of the first ships he sent out were built at Alexander Hall & Company's shipyard. Later the warships required by the Imperial Navy were beyond the size Aberdeen could handle and were built on the Tyne and the Clyde. Later still the Japanese built their own vessels. In a sense Glover contributed also to this development. From the early days he encouraged young 'progressive' Samurai to learn from the West. Several went to Scotland, some to stay with Glover's family in Aberdeen.^{vii} In 1867 at least one, Yozo Yamao, was apprenticed to Napier's shipyard on the Clyde and attended classes at Anderson's College, now the University of Strathclyde. By that date Glasgow was no longer primarily a cotton town; instead it was becoming a world centre for shipbuilding and engineering excellence.

In undertaking several of these vast projects simultaneously Glover over-stretched himself financially and got into debt (to Jardine-Matheson's among others). He could have returned to Aberdeen earlier a wealthy man, but he chose to remain in Japan for the rest of his life. Nevertheless he not only survived but prospered. He managed the mine he had formerly owned; he was invited by the founder and head of the Mitsubishi concern to act as their adviser in Tokyo and he even founded the first Japanese Brewing Company in 1885 which was later sold to the Mitsubishi group.^{viii} He lived long enough to see Japan triumph against China in 1894 and Russia in 1904 and to be recognised as the great new power in the east. The Emperor in 1908 honoured him himself. He died in Japan in 1911.

With his energy, willingness to take a chance and his determination to succeed, Glover was in line with many of the Scots pioneers in the east. He was also, perhaps, the model for the young Japanese who created the great Mitsubishi Company and the others who later went on to found the Sony and Toyota.

He did, perhaps also have an influence on Albert Brown, his friend and contemporary. Brown's spell in Japan from the 1860s to the 1880s coincided with that of Glover and in several respects their careers were similar. Both contributed greatly to the early development of Japan and both saw potential for trade between the UK and Japan.

However, while Glover, like Jardine and Matheson, made his career in the east, Brown, like Kirkman Finlay, for the latter part of his life concentrated on promoting trade from the home base to the east, exploiting the increasingly attractive Japanese market for Clydeside products, now no longer primarily cottons but ships and engines.

Like Glover, Brown's initial contribution to Japanese development was through his knowledge of the sea and ships.^{ix} In the year of the restoration of the Emperor, 1868, Brown, then a chief officer with the P & O Steamship Company, entered the service of the Japanese government to undertake, among other duties, the charting of the coasts of Japan. He had gained experience of the sea, ships and the east in the service of the P & O Co. entering as a boy of fourteen and rising steadily through the ranks to that of Chief Officer. In a letter to Brown, then Chief Officer of the *Mallacca*, the terms of his contract as Captain to the Lighthouse Steamer were clearly stipulated.^x It was for a period of five years at a salary of \$300 or £75 a month (at £900 a year it was more than double that of a Captain in the City Line at that time.)^{xi} In that service he was actively engaged for several years in connection with the surveying of sites for, and the construction of lighthouses and beacons. In 1874 the Japanese government decided to send a punitive expedition to the south east coast of Formosa because of the murder of a number of shipwrecked Ryukyu Islanders by the Botan tribe.^{xii} They tried to charter British and American steamers to convey necessary troops but the Ministers of those powers in Tokyo, fearing the complications between Japan and China which might result from the expedition, intervened and prevented vessels of their nationality from taking any part in the enterprise. Still lacking the required steamers, Japan decided to purchase foreign vessels. This important duty was entrusted to Brown who also supervised the fitting out of the various vessels at Nagasaki and despatched the expedition, himself taking command of the P & O Steamer *Delta* renamed the *Takasago Maru* and conveying General Saigo and 1500 men to Liang Kiao Bay. When the expedition was over, the Government found it had a number of steamers on its hands. It was largely at Brown's suggestion that these vessels were handed over to Iwasaki Yatero, of the Mitsubishi Company, on certain conditions. This was the nucleus of the Mitsubishi Company and, in fact, the modern merchant marine of Japan.

Brown and Glover were almost certainly known to one another at that time. Brown spent time in Nagasaki, Glover's base, and both were involved in supplying ships to the Japanese. Glover was absorbed at this period in his own business ventures, especially in mining, but could hardly have been unaware of Brown's activity. Both also contributed to the development of Mitsubishi. It was around 1876 that Glover was asked to go to Tokyo as an adviser to Isawaki Yatoro – they had been friends since the 1860s – to whom his knowledge of foreign trade and his connections with the leaders of the new Japan were invaluable.

On his return to the UK in 1874 Brown purchased two other merchant steamers for the Mitsubishi's fleet.^{xiii} He also despatched the *Meiji Maru*, a twin-screw steamer designed for lighthouse work and constructed by Robert Napier & Company, Glasgow. The terms of his contract were stated. He was to take delivery of the *Meiji Maru* and bring her back to Yokohama via the Suez Canal. He had to engage the crew and to contact agents in London – Matheson & Co. – for payment of coal and the wages of the crew. Even before the Meiji restoration, in 1868, Hugh Matheson, the head of Matheson's was the person to whom Japanese were referred on arrival in Britain.^{xiv} Within a short time they usually acted through their own agents. From the start the Japanese were businesslike in their methods. Brown's many responsibilities were always carefully specified when supervising the building of a ship for them.

When he returned to Japan in 1875 he was appointed to assist in forming a Marine Bureau, to draw up regulations and to take charge of all matters connected with shipbuilding and the Mercantile Marine generally, the necessity of encouraging and developing which he had strongly impressed on the Japanese Government. At a time when Britain was at the height of its naval and mercantile power, the thought that in assisting the Japanese he might thereby be contributing to a decline in the position of British shipping could hardly have occurred to Brown.

Moreover, throughout the later 1870s and 1880s he continued to create business for several British yards, the majority on Clydeside. At this period the China and Far East trade in general provided a valuable stimulus for Clyde shipbuilding. The great Jardine-Matheson patronised several yards on the Clyde.^{xv} The firm was associated with John Elder & Company, Glasgow, and the London & Glasgow Shipbuilding and Engineering Company. One of the largest subscribers to the Indo-China Steam

Navigation Company was James McGregor, a director of the London & Glasgow and also of the Glen Line, formed in 1878.

Almost all the Glen Line ships were built there. By 1881 the Glasgow Line had fifteen ships on Far East service, fourteen of them built by London Glasgow – and their agents were Jardine-Mathesons. The Scottish Oriental Steamship Company, formed in 1882, in which Sir William Pearse of John Elders was involved, sailed regularly from South China to Bangkok and Singapore until 1899. The prosperity of Greenock depended on the building and engineering of ships for the Blue Funnel Line, the China Navigation Company and the P & O Company. In Dumbarton, Dennys and Henderson & Company built for the Burmese Steam Navigation Company and the Irrawaddy Flotilla Company. Many of these Far East Lines also called at Japanese ports.

As early as 1869 two Glasgow registered and owned ships sailed, in the same month, direct from the Clyde to Japan^{xvi} - the *Wilhelmina Emma*, built in Glasgow in 1869 and owned by Miller Bros., Glasgow,^{xvii} sailed to Yokohama, and the *Eastern Isles*, built at Dumbarton, also in 1869 and owned by A C Gow & Company, ship and insurance brokers, of Union Street, Glasgow, to Yokohama and Nagasaki.^{xviii} It is noteworthy that the maiden voyages of both ships were to Japan – and within such a short period. Over the next twenty years the number of direct sailings increased until by 1889 frequently one ship out of fifteen or so in process of loading at Glasgow (usually at Queen's Dock) included a Japanese port in its itinerary.^{xix} Not all were Glasgow registered or owned, and calls were sometimes made at other British ports, but all included large consignments of local manufactured products in their cargoes for Japan.

The Clyde's leadership in shipbuilding closely paralleled in time Britain's predominance in the China trade. As the Imperial power, Britain had a similar predominance over the Indian trade. However, in the case of Japan, such influence or control was lacking from a fairly early date. The Japanese unlike the Chinese and Indians, were determined, and were able, to control their own economic destinies.

In the meantime, Brown was able to place several orders in Britain. Brown returned to Europe in 1877, 1883 and 1887 and placed orders for steamers with British yards.^{xx}

Table 1: Some of the early Commercial Ships built under A. R. Brown's Superintendence

Year	Location	Ship	Builders	Owners
1884	Tyne	<i>Yamashiro Maru</i>	Armstrong Mitchell	Union S/S Co. Japan
1884	Clyde	<i>Matsu Maru</i>	H. Murray & Co.	Union S/S Co. Japan
1884	Clyde	<i>Sarugu Maru</i>	H. McIntyre & Co.	Union S/S Co. Japan
1884	Clyde	<i>Yokohama Maru</i>	London & Glasgow Eng. Co.	Mitsubishi S/S Co.
1884	Tyne	<i>Omi Maru</i>	Armstrong Mitchell	Kiodo Unyo
1884	Clyde	<i>Kii Maru</i>	London & Glasgow Eng. Co.	NYK
1884	Clyde	<i>Satsuma Maru</i>	Napier Shanks & Bell	NYK
1888	Clyde	<i>Saikio Maru</i>	London & Glasgow Eng. Co.	NYK
1888	Clyde	<i>Kobe Maru</i>	London & Glasgow Eng. Co.	NYK
1888	Clyde	<i>Meike Maru</i>	London & Glasgow Eng. Co.	NYK

Most were built on the Clyde, one was for the Mitsubishi Company, and one for Kiodo Unyo Kaisha (KUK); others were for the Nippon Yusen Kaisha (NYK).

An article in the *North Britain*, dated 30 May 1884 described the trial run of *SS Yokohama Maru*. A large company of ladies and gentlemen joined the ship off Princess Pier, Glasgow, and a run was made down the Firth of Clyde into Lamlash Bay, round the Holy Isle and back, the speed attained being over 13 knots per hour. The owners' representatives at the results attained expressed satisfaction. The article went on to state that the ship was built by the London & Glasgow Engineering and Iron Shipbuilding Company, Glasgow, and launched from their yard at Govan. 'A very handsome steel screw steamer of about 2300 tons, built to the order of the Mitsui Bishi [sic] mail Steamship Company, Tokyo, she was under the superintendence of

Captain A R Brown. As well as having extensive carrying facilities, she had accommodation for thirty First Class passengers. The fittings were of the most elegant 'as required by Mitsu Bishi and suggestive of Japanese high art in design and decoration.' All the First Class and officers' staterooms and forecabin were heated by steam. There was also accommodation for twenty Second Class passengers and for 170 steerage passengers. The steam windlass was by Napier Bros. of Glasgow and the steam steering gear by John Hastie & Company of Greenock. The engines were furnished by the builders and had all the latest improvements in their design.

In 1885 competition between Mitsubishi and the Kiodo Unyo Kaisha (KUK) threatened ruin to both. The result was the formation of a new company, the Nippon Yusen Kaisha (NYK), to take over both the existing ones.^{xxi} At the request of the Japanese government Brown became the General Manager and the company entered on a highly prosperous career. In 1886 he was involved in an agreement between the Pacific Mail Steamship Company of New Zealand and the Nippon Yusen Kaisha for the conveyance of goods from San Francisco to Shanghai and Yokohama – an indication of their expansion.^{xxii} In 1888, however, he appeared to be in dispute with Malcolm Brunner & Co., agents for the Japanese Imperial Railway about the quantity of rails as cargo for the *Meiki Maru*.

In 1889 Brown resigned from his position, not to sever his connection with the Company but to take charge of their shipbuilding programme in Britain and other business requiring expert superintendence. Nowadays, of course, the Japanese would expect to conduct any supervision in Britain themselves, frequently in factories which they owned. Roles have been reversed in the intervening century. The Japanese were in this period the learners, but, as has already been shown, they were very fast learners. As early as 1874 a Japanese commercial concern, K. Okuras, opened an office in London.^{xxiii} In 1877 Mitsui and Co. followed their example. Takata & Co. was another company already active in London at that time. From the early years of the twentieth century they were able to negotiate between Japanese shipping concerns and British ship-builders.^{xxiv} By 1907 Takata were using and possibly employing Japanese inspectors who was resident in Glasgow (at St Vincent Crescent) and was able to raise technical queries with the shipbuilder about the costing of items being prepared for the ship. In the meantime the Japanese relied a great deal upon the

advice and guidance of men like Brown. Before his departure from Japan Brown was decorated with the Third Order of the Rising Sun in appreciation of his services^{xxv} - one of the first British subjects in Japan to receive that honour – Glover had to wait until 1908 to receive a similar award.^{xxvi} However in being recognised for their contribution to Japanese development their careers again paralleled one another.

Brown had contributed to the mercantile development of Japan in other useful ways. Like Glover, he realised the importance to young Japanese of technical education and helped to found the Tokyo Nautical College.^{xxvii} He was a friend of Dr Henry Dyer who developed the study of engineering at Tokyo to college level^{xxviii} and who later became a life governor of Glasgow Technical College^{xxix} (now Strathclyde University) where many young Japanese came to study.^{xxx} Brown also founded the Tokyo Marine Insurance Company and other organisations of particular value to the shipping fraternity.^{xxxi} In 1906 Mr Elliot Griffis, who had been in the educational service of Japan in 1870 and at the Imperial University of Tokyo 1872-74, wrote to Brown stating that he wished to include him in a list he was compiling of foreigners in the service of the Japanese Government 1838-1900 to show the help given by them to the country's progress – another recognition of service.^{xxxii}

Again like Glover, during his years in Japan, Brown entered into the social life of the growing European community and was a member of the Masons of Yokohama. At a banquet he attended in 1886 organised by the District Grand Lodge of Japan he was promoted to District Grand Superintendent of Works.^{xxxiii}

On his return to the UK Brown settled in Glasgow as Japanese Consul. That mutual benefits could be derived from contacts between the Japanese and Glasgow business interests was illustrated in the reports in the local press of the visit of the Iwakiri Mission to the city as early as 1872.^{xxxiv} While the aim of this important group of Japanese visitors was to learn from the West, that of the Glasgow business community was primarily to improve prospects for trade.

Accompanied by important dignitaries, the Japanese undertook a range of visits to factories and works which represented the leading industries of the region. They visited Higginbottoms, a survivor of the great days of Glasgow's cotton industry, and had the spinning, dyeing and printing processes explained to them. They proceeded

to Dixon's Ironworks, another long-established industry in the city and saw the blast furnaces in operation. They visited the locomotive engine works of Dubbs & Co. at Little Govan, an increasingly important export industry. They went on to visit St Rollox Chemical Works, for a time the largest works of their kind in Europe. They were also taken on a tour of the city itself – the 'Second City of the Empire' – visiting the Cathedral, the Royal Exchange, the Chamber of Commerce and the Corporation Galleries in Sauchiehall Street. As well as great wealth, industrialisation had of course brought vast social problems to the city. That the City Fathers were attempting to tackle some of these problems was also pointed out to the visitors. They were taken to view the work being done on housing by the Improvement Trustees and to the Cooking Depot in Buchanan Street where they tasted the soup being served up to the large number of people who regularly took advantage of 'that excellent institution' – an early soup-kitchen! In the course of their visits the Japanese met the local MPs and councillors who included in their ranks the leading Glasgow businessmen of the period.

Speeches at the Chamber of Commerce illustrated the importance being attached to the visit.^{xxxv} In his address, the President of the Chamber of Commerce stressed the rapidity of Japan's industrialisation and modernisation. As he listed the progress made – the establishment of state-aided schools, mechanical and engineering works on the British model, railway and telegraph systems, lighthouses, gas works and coastal steamers – several built on the Clyde, the introduction of religious toleration and the foundations of representative government – the President was perhaps being somewhat patronising, but in 1872 he could perhaps well afford to be. Above all hopes for trade were high. The Japanese direct import trade amounted to £7,000,000, about one quarter consisting of British cotton goods. British exports alone amounted to £3,000,000 compared to £43,000 exported in 1861 – a seventy-fold increase in a mere ten years. It was also pointed out that as well as exporting warships and coasting steamers Glasgow exported wearing apparel – tweeds, wool shirtings, caps, boots, and shoes – designed to 'Europeanise' the native population of Yokohama and Nagasaki. The party's base for their Clydeside tour was the home of Lord Blantyre, Erskine House, where they viewed the latest agricultural equipment on the home farm which impressed them greatly. They noted that the turnips, which were used for food for animals, were a favourite dish with the Japanese. The next day they continued to

the port of Greenock where they visited two of its principal industries represented by Caird's shipbuilding works and the sugar refinery of John Walker & Co. The opportunities for trade for Brown, as Japanese Consul appeared to be enormous.

Brown was not a native of Glasgow, he was born in the south of England, at Ringwood in Hampshire. The son of a clerk to the Ringwood Board of Guardians, his background was apparently comfortably middle-class.^{xxxvi} One of his brothers became a Bank manager in London, another settled in Canada. The fact that Brown himself finally settled in Glasgow illustrates again the city's importance in the ship building world. No longer did enterprising Scots have to make their way south – though many still did – but equally enterprising Englishmen frequently came north to further their business careers.

In 1888 Brown opened an office in Glasgow as A R Brown and continued to superintend the building of ships for the Japanese.^{xxxvii} Three of them are listed below:

Year	Location	Ship	Builders	Owners
1889	Clyde	<i>Musashi Maru</i>	Lobnitz & Co.	NYK
1897	Clyde	<i>Wakasa Maru</i>	D. & W. Henderson	NYK
	Clyde	<i>Geanaki Maru</i>	Napier, Shanks & Bell	NYK

In 1889 the *Masashi Maru* sailed from Greenock to Yokohama via Singapore and Hong Kong.^{xxxviii} A friend and colleague of the founder of Mitsubishi, K. Kawada served an apprenticeship in Lobnitz yards and developed a long-standing connection with the firm. His son also spent several years (1877-84) as an apprentice there.^{xxxix} Such contacts were useful to several Clydeside firms.

In 1899 Brown's business became A R Brown & Co when he went into partnership with his only son, Edward A Brown^{xl}. In 1900 the firm became A R Brown, McFarlane & Company when the ship-designing side of the firm was strengthened by the recruitment of George McFarlane, a consulting engineer and naval architect.^{xli} George McFarlane died in 1908 but the firm has survived in the city to the present day. Unfortunately their records suffered serious losses by bombing in World War II.

Their business was to solicit orders for ships from Japanese (and others), prepare and design, place the order, negotiate the contract with the shipbuilder, supervise the construction, deal with the day-to-day problems, accept the finished vessel and, if necessary, take delivery and organise a captain and crew to deliver the vessel to its owners.^{xliii} Of fifty-five vessels designed and superintended by the firm between 1900 and 1912, not counting other cruisers and dredgers, twenty-one were for Japan. Brown's long experience of working for the Japanese was undoubtedly a considerable advantage.

For many years after 1889 his Glasgow company acted as buying agents in the UK for Mitsubishi Shipbuilding and Engineering Company, Nagasaki and Kobe, buying and shipping all materials and equipment required in shipbuilding.^{xliiii} This continued until 1917 when MB shoji Kaisha opened in London as a trading house. The Japanese had since the 1870s established their own agents in Britain, but at the same time found men such as Brown, who could also provide them with an invaluable network of connections, highly useful.

A general business was also done by the firm in exports to Japan through a joint venture business with H Isono & Company, later known as Yonei Shoten K K.^{xliiv} This commenced through a visit to Glasgow by Mr Hakura Isono who knew Brown when he was in Japan. The business formed by Isono and Yonei was very successful in obtaining, in open tender, large contracts from various Government Departments for materials and machinery, supplied and shipped by A R Brown, McFarlane & Company. A wide general business was done in the equipment of new factories and supplies. The firm thus contributed to the further rapid industrialisation of the new Japan. In the UK Brown, McFarlane & Company extended their home business in supplying steel and scrap, building materials and under subsidiary or associated companies, in manufacturing. Iron and steel goods featured prominently in direct exports from the Clyde to Japan at this period.^{xliv}

Brown became widely known in commercial circles in Glasgow, particularly, of course, with the firms doing business with the Far East, and was well known in Glasgow shipbuilding circles. Wm. Denny of Dumbarton was one of the Clydeside firms which had a long working association with him.^{xlvi} They were important suppliers of ships to Japan for many years. The firm of Applby Ltd, Glasgow

supplied cranes to Mitsubishi at Nagasaki in 1909.^{xlvii} The Glasgow connection with the firm was then strong. J. & G. Weir of Cathcart, makers of pumps and other gear for warships and merchant ships, was another local example of a firm which had considerable business with the Japanese. They accepted Japanese into their works and from 1912 their equipment was being made under licence in Japan by Kiwasaki and Mitsubishi^{xlviii} - a further significant stage also in the development of Japanese industry.

Glasgow attracted many Japanese students during this period and Brown, in his capacity as Consul, came into contact with many of them, acting, in effect as their guardian. In 1895 he reported on five students from the Tokyo Nautical College which he had helped to found who were now serving their apprenticeships in Glasgow.^{xlix} Among the most notable Japanese students in Glasgow at this period were the later heads of large Japanese organisations- the vice-president of Mitsubishi Shipbuilding, the president of M B Shoji Kaisha, the president of Tokyo Marine Insurance Company, the son of Baron Kondo of NYK, the president of Yonei Shoten and the president of Merdi-Ja.^l All were the sons of Brown's friends. The son of Kondo of NYK probably stayed with the Lobnitz family at Renfrew.^{li} When Brown died in 1913 a letter of condolence arrived from the 'The Glasgow Society' in Tokyo signed by, among others, several important Japanese businessmen.^{lii} His son continued his good work. H Shoda, the general manager of Mitsubishi wrote to Edward Brown in 1919 to express how much he appreciated the value and guardianship and direction accorded to his son, Taizo.^{liii} He spent seven years in Glasgow, graduating BSc in 1916 and serving his apprenticeship with David Rowan engineers.^{liv} During that time, he lived with the Finlays (of Finlay & Company, tea-merchants) in Pollockshields – an interesting link with the Glasgow pioneer of the trade with the East.^{lv}

Brown adapted well to life in Scotland and, as in Japan, entered into the social life. Like many successful Glasgow businessmen of the time he lived at the Firth of Clyde, at Shandon, Gareloch. Yachting became one of his interests and he owned a schooner named, appropriately, *Geisha*. He also enjoyed angling. In Glasgow, he was a popular member of the Western Club. He was interested in the welfare of boys in trouble with the law and for many years served on the committee of the Clyde

Training Ship *Empress* giving valuable service to the institution's management. He kept in touch with the many friends he had made in Japan – among them Thomas Glover from whom he received a very friendly letter, written on Mitsubishi notepaper, ending 'Your Sincere Old Chum', and dated 1911, the year of Glover's death. He himself died in 1913 at Bournemouth and was buried at his birthplace, Ringwood.^{lvi}

Today Aberdeen is attempting to exploit Glover's contribution to Japanese development in the interests of local trade and tourism. There are plans to develop his house in Aberdeen as a visitor centre and in Fraserburgh a heritage centre is being built.^{lvii} It could be maintained that the name of A R Brown is equally worthy of commemoration in Glasgow in some way. Not simply as an encouragement to Japanese interest in the area, though that would be welcome, but as an inspiration to local entrepreneurs to go anywhere in the world where there are prospects for trade, as their predecessors did so effectively one hundred years ago.

Brown's family continued to serve in the firm of A R Brown, McFarlane & Co.^{lviii} His only son, Edward Albert Brown (1867-1956) first went to Japan with his parents as a small child. He returned home for his education but made several visits to Japan later. He was Managing Director of the firm for a time but retired in 1912 for health reasons. He continued friendships with his father's friends and their successors. Sir Frederick Lobnitz of Lobnitz & Company was one, the Prime Minister and himself a Glasgow man, who was godfather to one of his sons was another. One of his two sons, Richard F Brown, educated at Eton and Trinity, Cambridge, joined the firm in 1928 at the age of 22. He went to Japan in 1932 to study the language and commercial affairs and married the daughter of a Professor at the Japanese Naval College. He was appointed Joint Managing Director of the firm in 1935 and returned to the London office in 1936. After service in World War II he returned to Japan in 1947 to re-open business and thereafter spent most of his time there. He died in London in 1963 at the age of 57. His nephew, Kenneth E L Brown continued the family connection with the firm becoming Assistant Secretary in Glasgow after qualifying as a Chartered Accountant. In 1967 he was appointed a Director and visited the Tokyo office to learn of Japanese conditions.

For over fifty years the Honorary Consul for Japan in Glasgow was always a member of the firm –from 1889-1913 A R Brown himself, from 1913-1935 A Scott Younger

and from 1935-1941 Urquhart F Burrell.^{lix} However, since World War II there has been no honorary consul in Japan – sadly, perhaps, a reflection of Glasgow's changed position in the modern world.

In the inter-war period A. R. Brown, McFarlane appeared to cope fairly successfully in the difficult economic circumstances of the period.^{lx} The firm made by far the largest shipments out of Glasgow to Japanese ports. Not only did they ship several tons per annum (up to 1935) by Blue Funnel Vessels but they also provided the main reasons for a Glasgow call by Nippon Yusen Kaisha vessels. The shipments were mainly of iron and steel but other engineering and hardware items as well.

After 1945, there appeared to be a mutual desire on the part of A. R. Brown, McFarlane and the Japanese to resume trade. The Japanese kept in close touch with the firm in the hope that trade would come back to them. There were dealings with the two Glasgow Directors and many freight rates were quoted. However, in the firm's view, the post-war Labour Government appeared to be unwilling to sanction this trade, putting obstacles in the way which caused them considerable frustration. After his visit to Japan in 1947 the London director, Brown, was very optimistic about the resumption of trading if only 'the British Government would understand their obligations as well as their rights.'^{lxi} A. R. Brown, McFarlane's Japanese office which, as has been shown, had been re-opened by Richard Brown, was on good terms with the Supreme Commander of the Allied Powers and was asked to cover the building in Japan of several ships as they had done pre-war. An order for steel plates and sections of 88,000 tons valued at over £2,000,000 was available and payment was to be made in US dollars. Brown, McFarlane approached the Board of Trade several times for permission to accept the order but permission was refused. The reason given was that quantities of steel which could be sent for export were strictly limited and in view of the heavy demand from overseas in connection with our essential imports of food and raw materials it was not possible to make available an allocation of shipbuilding steel for Japan. Against this, Brown, McFarlane argued that US dollars, more valuable even than food, were being offered. They also pointed out that if the iron and steel order was accepted, complementary orders for auxiliary machinery and fittings were likely to come to Britain also. And the firm was prepared to go to the highest political level to achieve its ends. They approached one MP who

had knowledge of Japanese affairs and considered a personal approach to Sir Stafford Cripps.

Despite the difficulties in resuming the trade with the Japanese after the war, the firm maintained its Tokyo office at least until the late 1960s. However, by that stage Britain's position in the world was changing dramatically. After the post-war boom, the country found increasing difficulty in competing with –among others- the new powers of the Far East, especially Japan. Industries such as iron and steel and shipbuilding declined to near extinction. As has been stated, Japanese firms – and others were eagerly sought to establish factories in Britain.

Perhaps opportunities were missed after the war, the government's attitude influenced by the events of the war itself as well as by economic issues such as the apparently intractable dollar shortage. The firm of A R Brown, McFarlane saw no reason to be bound by such restraints. Despite Japan's aggressive policy in pre- and post- World War I culminating in World War II itself, and its increasing challenge to Britain's trade, the firm's sole criterion remained purely commercial. This had been the attitude of successful Scots in the East from Kirkman Finlay to Jardine and Matheson to Thomas Glover – as well as Albert Brown. All they demanded was the right to trade freely. Unfortunately for Britain by the second half of the twentieth century others – pre-eminently the Japanese – had learned from their example. To succeed in the modern world, the enterprise, opportunism and ruthless determination to succeed of these pioneers are, perhaps, more than ever required.

ⁱ James Finlay & Co. Ltd. (1750-1950) (Glasgow, 1951), p. 7

ⁱⁱ O. Checkland, *Britain's Encounter with Meiji Japan, 1868-1912* (London, 1989), p. 246

ⁱⁱⁱ A. McKay, *Scottish Samurai* (Edinburgh, 1993), p. 11

^{iv} McKay, *Scottish Samurai*, p. 13

^v McKay, *Scottish Samurai*, p. 73.

^{vi} McKay, *Scottish Samurai*, p. 72

^{vii} McKay, *Scottish Samurai*, p. 76

^{viii} McKay, *Scottish Samurai*, p. 127

^{ix} Glasgow University Archives [hereafter GUA] UGD 172 A R Brown, McFarlane & Co. Ltd.

^x GUA UGD 172

^{xi} GUA UGD 131/1 City Line Ltd.

^{xii} GUA UGD 172

^{xiii} GUA UGD 172

^{xiv} Checkland, *Britain's encounter with Meiji Japan*, p. 174

^{xv} A D Blue, 'The China Coast. A Study of British Shipping in Chinese Waters, 1842-1914' Unpublished Ph D thesis, University of Strathclyde, 1982

^{xvi} Mitchell Library, Glasgow [hereafter ML] Clyde Bills of Entry, 1869-89

^{xvii} *Lloyd's Shipping Register, 1869-1870*

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- xviii *Lloyd's Shipping Register, 1869-1870*
xix ML, Clyde Bills of Entry, 1869-1889
xx GUA UGD 172
xxi GUA UGD 172
xxii GUA UGD 172
xxiii Checkland, *Britain's encounter with Meiji Japan*, p. 176
xxiv Checkland, *Britain's encounter with Meiji Japan*, pp. 155-156
xxv GUA UGD 172
xxvi MacKay, *Scottish Samurai*, pp. 139-140
xxvii GUA UGD 172
xxviii Checkland, *Scottish Samurai*, p. 76
xxix Checkland, *Scottish Samurai*, p. 184
xxx Checkland, *Scottish Samurai*, p. 140
xxxi GUA UGD 172
xxxii GUA UGD 172
xxxiii GUA UGD 172
xxxiv *Glasgow Herald* 8, 11, 14 October 1872
xxxv *Glasgow Herald* 11 October 1872
xxxvi GUA UGD 172
xxxvii GUA UGD 172
xxxviii ML, Clyde Bills of Entry
xxxix Checkland, *Britain's encounter with Meiji Japan*, p. 151
xl GUA UGD 172
xli Checkland, *Britain's, encounter with Meiji Japan*, p. 292
xlii Checkland, *Britain's, encounter with Meiji Japan*, p. 177
xliiii GUA UGD 172
xliv GUA UGD 172
xlv ML, Clyde Bills of Entry
xlvi Checkland, *Britain's, encounter with Meiji Japan*, p. 177
xlvii Checkland, *Britain's, encounter with Meiji Japan*, p. 259
xlviii Checkland, *Britain's, encounter with Meiji Japan*, p. 152
xlix Checkland, *Britain's, encounter with Meiji Japan*, p. 152
l Checkland, *Britain's, encounter with Meiji Japan*, p. 166
li Checkland, *Britain's, encounter with Meiji Japan*, p. 168
lii Checkland, *Britain's, encounter with Meiji Japan*, p. 166
liii Checkland, *Britain's, encounter with Meiji Japan*, p. 287
liiv Checkland, *Britain's, encounter with Meiji Japan*, p. 152
liv Checkland, *Britain's, encounter with Meiji Japan*, p. 168
lvi GUA UGD 172
lvii Mackay, *Scottish Samurai*, p. 146
lviii GUA UGD 172
lix GUA UGD 172
lx GUA UGD 172
lxi GUA UGD 172

The Denny Experiment Tank 1883 –1963

Niall MacNeill

Dumbarton

The Denny Tank was the first ship test facility to be owned by a merchant shipyard. When it opened in 1883, it was the sole centre outside the British Admiralty to apply the pioneering model testing techniques of William Froude to the problems of ship design. At the forefront of 19th century marine technology, it established William Denny and Brothers as world experts in the building of fast medium-sized cross channel steamers and other specialist craft for over sixty years.ⁱ It also gave Denny the monopoly of model testing on the Clyde for over 20 years. Although Denny had co-operated with John Brown in model test work, it was not until 1904 that the latter company built their own tank at Clydebank to challenge the German transatlantic liners of the Norddeuther Lloyd Company which had been tested at that company's recently opened Bremerhaven tank.ⁱⁱ

It has often been said that growth of shipbuilding was Dumbarton's economic salvation after the decline of the town's glass making industry in the 1850s. It is now also apparent that Denny's decision to build the Tank was the salvation of their yard in the 1880s. The transatlantic liner as a type had grown in length in the previous decade from about 350 feet in length to well over 500 feet.ⁱⁱⁱ Owing to launching restrictions imposed by the River Leven at this time, Denny was finding it ever harder to launch this class and size of vessel; indeed the firm had not built a Cunard vessel since s.s. *Parthia* of 1870. At 360 feet length, even she could not have been an easy ship to launch. The plight of a sister ship for the P. & O. company is testimony to this: after her launch s.s. *Indus* grounded on the bar of the mouth of the Leven for 3 days before finally sailing out onto the Clyde.^{iv} Orders for larger vessels were moving away to Clydebank and Govan.^v

In order to survive, Denny needed to enter and excel in the cut-throat market for technically advanced cross channel steamers. To do so required better design work and more accurate estimation of costs and performance than any rival could manage.

Building the tank enabled Denny to achieve this and ultimately revived the fortunes of the yard.

The contract responsible more than any other for this revival was the outstanding *Princesse Henriette* of 1888, the fastest cross channel steamer on the Dover-Ostend route for many years after she was built. The Belgian Government, who ordered her insisted that she should not exceed 300 ft in length or aft 6 inches in draught to enable to her dock swiftly at both ports and to clear the bar at the entrance to Ostend harbour at low tide.^{vi} The new ship was to attain the unprecedented top speed of 20.5 knots.

Under the terms of the contract, a penalty of £500 to the builders was to be exacted for each tenth of a knot that the vessel fell below this top speed^{vii}. Failure to make 19.75 knots would absolve the Belgians from any obligation to purchase. As if this were not a hard enough bargain, they also decreed a delivery date no later than seven months after the signing of the contract and a penalty of £40 for each day after this.^{viii}

Times were hard and money short for all Clyde shipbuilders in the mid 1880s. Other yards simply could not afford to run the risk of taking on the contract for a 20.5 knot steamer with such harsh penalty clauses. To do so would have been rash as even 15 knots was then considered a respectable enough maximum for this class and size of vessel.^{ix} However, the Tank gave Denny the means to test quickly, scientifically and cheaply the numerous design improvements (i.e. changing the location of paddle wheels, angle of blades and length/beam ratio) to obtain the extra speed.^x It also provided predictions of the exact horsepower needed for the trial speed. So when in May 1888 the *Princesse Henriette* ran her measured mile trials at over 21 knots,^{xi} her builders must have felt immense satisfaction but no great surprise: the ship's success had vindicated their decision to invest in the Tank.

However, to consider the Tank merely as a good investment at an opportune time would be to do scant justice to the imagination, foresight and intelligence of the men who built and ran it. At a time when the ideas of William Froude (1810-1879) were no means universally accepted, William Denny (1847-1887) already had a full appreciation of their worth. A letter he wrote to Froude in August 1878 is testament to his intelligence and free-thinking:- *'Without compliment and with only truth, I can say that you have made my views on [ship] design.'*^{xii}

Denny had made his first visit to Froude's Admiralty Tank at Torquay as far back as 1873^{xiii} and was one of the earliest proponents of Froude's scale model testing. However it was not until eight years later that the Admiralty gave their assent to the building of the Dumbarton tank in a momentous letter from the Chief Constructor of the Navy, Nataniel Barnaby to R.E. Froude, son of the now deceased William:-

Admiralty,
Whitehall,
London
23rd February 1881

My dear Mr Froude,

I shall be pleased if you will facilitate in every way agreeable to yourself the establishment of an Experiment Tank as proposed by Mr Denny.

Mr William Denny proposed with some presumption to visit you and I am very pleased to hear it.

Sincerely yours.

N BARNABY
CHIEF CONSTRUCTOR OF THE NAVY^{xiv}

If William Denny had generated the impetus to build the new tank, it was Frank Prio Purvis (1850-1940) and Edwin Richard Mumford (1859-1926) who made it work and set it up to become one of the most effective test establishments in the world. Both men had been former assistants of William Froude at Torquay before their arrival in Dumbarton. Purvis was appointed head of the yard's scientific department in 1881.^x A fellow of the revered School of Naval Architecture at South Kensington, he was appointed to Torquay in 1873 where his work was deemed 'excellent and trustworthy by Froude.^{xvi} Denny was to exploit those qualities fully for he left Purvis with the brief of equipping and running the new tank. Frequently away from Dumbarton chasing orders, Denny did not have the time to give his attention to the everyday running of the new tank. It was Purvis, not Denny, who moulded the first wax model and conducted the first experiments in February 1883. He installed the Froude mode shaping machine and designed a special stool which rose and fell to the curve of the ship model's lines.^{xvii}

From Denny's viewpoint, the decision to vest Purvis with the authority to run the tank was shrewd. Purvis had travelled widely in Europe. He had visited Tideman's Amsterdam tank in 1878 and had sent a detailed report of its workings to Froude. Even after he left Torquay, he remained a close friend of R E Froude well into the twentieth century.^{xviii} By the time of his arrival in Dumbarton in 1879, he alone had the expertise and contacts necessary to ensure the future success of the tank.

This expertise extended to the recruitment of staff. E. R. Mumford (1859-1926) was appointed by him to the Leven tank in 1882 and was deemed a 'great acquisition' in an enthusiastic letter to R E Froude some months after his appointment.^{xix} As Purvis was preparing to leave Torquay as the nineteen year-old Mumford was preparing to start, this judgement is in all likelihood impartial and Mumford's appointment without nepotism.

Educated at HM Dockyard at Devonport, Mumford became Superintendent of the Dumbarton Tank in February 1883 and remained in this post until his death in 1926, working zealously on the improvement of ship propulsion throughout his long career there.^{xx} After the success of the *Princesse Henriette*, he gave ever more attention to the design of the screw propeller, as it began to replace the paddle wheel in ordinary vessels. Propeller test equipment was installed at the tank and was used extensively to measure propeller drag for individual models and comparative tests.^{xxi} As this trend for the screw propeller to replace the paddle wheel continued in the 1890's, Mumford was soon inundated with requests for tests on new and elaborate designs.^{xxii} One such design, 'Colonel Smyth's propeller' worked sufficiently well to be tested on an eighty foot steam yacht but many did not even match the efficiency of the normal propeller, far from improving on it.^{xxiii}

Using the narrow criterion of improved efficiency the above experiments were failures, but they doubtless gave Mumford's creative mind the impetus to investigate new applications for the propeller and ultimately to design his own helicopter. His logic was that if a propeller could produce forward thrust through water then if it was made large enough and light enough it could also produce lift in air.^{xxiv} He conducted an exhaustive series of tests for the thrust and turning force of propellers in water and air. Records of those tests survive in the Denny Tank.^{xxv} The logical conclusion of the tests was to put theory into practice and thus a six-rotor helicopter was completed

in 1905. Unfortunately the technology of the day was no match for the brilliance of its inventor and the engine did not supply sufficient power to lift its bamboo framework which had become waterlogged in a storm.^{xxvi}



Figure 1. E.R. Mumford (1859-1926) pioneer of model ship experiments [reproduced by courtesy of West Dumbartonshire Library & Museum Service]

A new version with a tubular aluminium framework certainly demonstrated the principles of helicopter flight in September 1912 and a tethered flight of 10 feet from ground behind Dumbarton Rock^{xxvii} was claimed by Denny though there are unfortunately no photographs to substantiate this. The “pilot” J. Pollock Brown survived this ordeal and later became a technician at the Royal Aeronautical Establishment, Farnborough.^{xxviii}

The outbreak of World War One made more pressing demands on Mumford’s time and when he died in 1926, his concept of the helicopter as a practical means of transport died also. Nevertheless it was a pioneering attempt to produce a machine which owing to technological advances, has now become commonplace and versatile. Moreover if Mumford had been forced by his employer to restrict himself to projects which offered immediate financial gain the machine would never have been built.

Mumford’s interests outside work were no less eclectic: they included the Dumbarton Philosophical and Literary Society, the Operatic Society and the Garden Allotment Section of the Dumbarton Social Union.^{xxix} He was certainly a keen gardener and it is even rumoured among older Dumbarton people that the discarded bamboo frames from his helicopter ended up better employed as supports for tomato plants in his greenhouse!

While Mumford was set on this life of exemplary service to Dumbarton, Purvis was becoming increasingly disillusioned with his prospects of advancement there. His application in 1886 for the chair of Naval Architecture at Glasgow University had been rejected in favour of Philip Jenkins (1854-1891), yet another former assistant of Froude at Torquay.^{xxx}

This appointment, Purvis opined, ‘*owed very much to tactics*’^{xxxi} and the absence from the scene of William Denny as mentor and referee. Denny was often abroad chasing orders and in 1887 committed suicide in Buenos Aires after the collapse of protracted negotiations with the La Platense Flotilla Company.^{xxxii}

Purvis felt this loss keenly and left the tank in 1889 to pursue his academic ambitions at the Imperial University, Tokyo where he became Professor of Naval Architecture in 1902.^{xxxiii} He set up an Experiment Tank at Nagasaki for the Mitsubishi Shipping Company in 1909.^{xxxiv} He requested Denny to look after the supply of the material

for the tank and dispatched a Mr Kawahara to Dumbarton for over a year to be trained thoroughly in all the work of the tank.^{xxxv} The British Admiralty was obdurate in their refusal to send information on test tanks to Japan.^{xxxvi}

Purvis died at his home in Seaford, Sussex on February 20th 1940 in his 90th year fourteen years after Mumford and a comparatively little known figure in his own country. However, the Japanese conferred upon him the Order of the Rising Sun and the Order of the Sacred Cross for his services to shipbuilding in their country.^{xxxvi} cursory reference to his death is made by the Royal Institution of Naval Architects and there is not so much as an obituary notice in his local paper, the *Seaford Gazette*.

The tank's unrivalled reputation for pioneering ship design work did not die with Purvis and Mumford. James F. Allan (1904-57), Hans Volpich (1908-71) and William Walker (1912-1988) were worthy successors as Tank Superintendents. Allan and Walker, both educated at Dumbarton Academy, continued Mumford's research on ship propulsion, and used the tank in the early 1930s to predict more accurately the correlation between a model propeller's performance and its full-sized equivalent. However, Allan's most innovative work was on the development of high-speed hydrofoil supported craft. The product of this research was the MTB 109 of 1943, a 52 knot semi-hydrofoil motor torpedo boat for the Royal Navy.^{xxxviii} A drawback of her design was that her Packard's engine 1200 h.p was put through a single screw, generating tremendous torque and making her none too stable at speed.^{xxxix} Although she never saw active war service, other builders of hydrofoils later reaped the benefits of Allan's research on the problems of high-speed craft.

A native of Trieste, Volpich came to the Tank in 1931 and succeeded Allan and Walker as Tank Superintendent to become the last of the Denny era. In 1957, he was awarded the Gold Medal of the Institution of Engineers and Shipbuilders in Scotland for his outstanding contribution to the theory of paddle wheel propulsion.^{xi} Until Volpich's and Bridge's paper of the mid-1950's, data on systematic model paddle tests were not to be found in the technical literature.^{xii} The main reason for this had already been touched upon. Most experiment tanks were built after 1900 by which time the screw had replaced the paddle for normal ship propulsion: systematic tests of the former were deemed far more important.^{xiii} It may therefore seem surprising when Volpich embarked on such exhaustive research more than 60 years after the tank'

previous and far more rudimentary paddle experiments on the p.s. *Princesse Henriette* had been concluded. The yard however had built scores of shallow draught steamers for the tropical rivers of India and Burma, paddle steamers which had given excellent service. Had the Denny yard remained in business longer, Volpich's research may have been used to re-equip those craft with more efficient paddle wheels.

Under Volpich, the Tank staff also made significant improvements in model testing techniques. The British Ship Research Association (BSRA) in 1950 acquired the old North British paddle steamer *Lucy Ashton*, then under the chairmanship of Sir Maurice Denny (1886-1955). In an attempt to determine the scale effect on the drag of ship models extrapolated to full scale, the Dumbarton yard removed her superstructure, machinery and paddles. Her hull was stripped of paint and four Rolls Royce Derwent jet engines were mounted transversely on a lattice bridge midships above the deck.^{xliii} Using those to thrust her through the water made her behave as a "full-sized" model, a final spot on the curve of extrapolated drag was obtained and hence a 'confirmed' extrapolation formula for measuring model drag. Those 1950-51 tests on the *Gareloch* must surely have astounded those who knew the ship in her former guise. However, even today they are regarded by the experiment tanks of many countries as the cornerstone of all ship model prediction work. They also preserve the memory of a famous Victorian paddle steamer in the world of contemporary ship research, 107 years after she was built

Despite the success of the BSRA tests on p.s. *Lucy Ashton*, Volpich is most associated with his development of the Denny-Brown stabilizer, still in production today and one of the most significant and widely adopted design improvements the shipping industry has seen this century. It owes its success to two small horizontal fins that protrude from each side of the ship below the waterline. They are moved through a moderate angle in the manner of aircraft ailerons but in opposite directions. Hence, with the vessel in motion, the speed of the water past the fins counteracts the effects of waves and reduces rolling to a tolerable level.

Tank research on stabilising fins began as early as 1931 after Sir Maurice Denny and Sir William Wallace of Brown Brothers agreed to a joint approach on the use of fins for testing ships.^{xliiv} Volpich, Walker and Allan worked as a team collecting data on the rolling performance of hulls in the tank to establish the correct shape of fin.^{xliv}

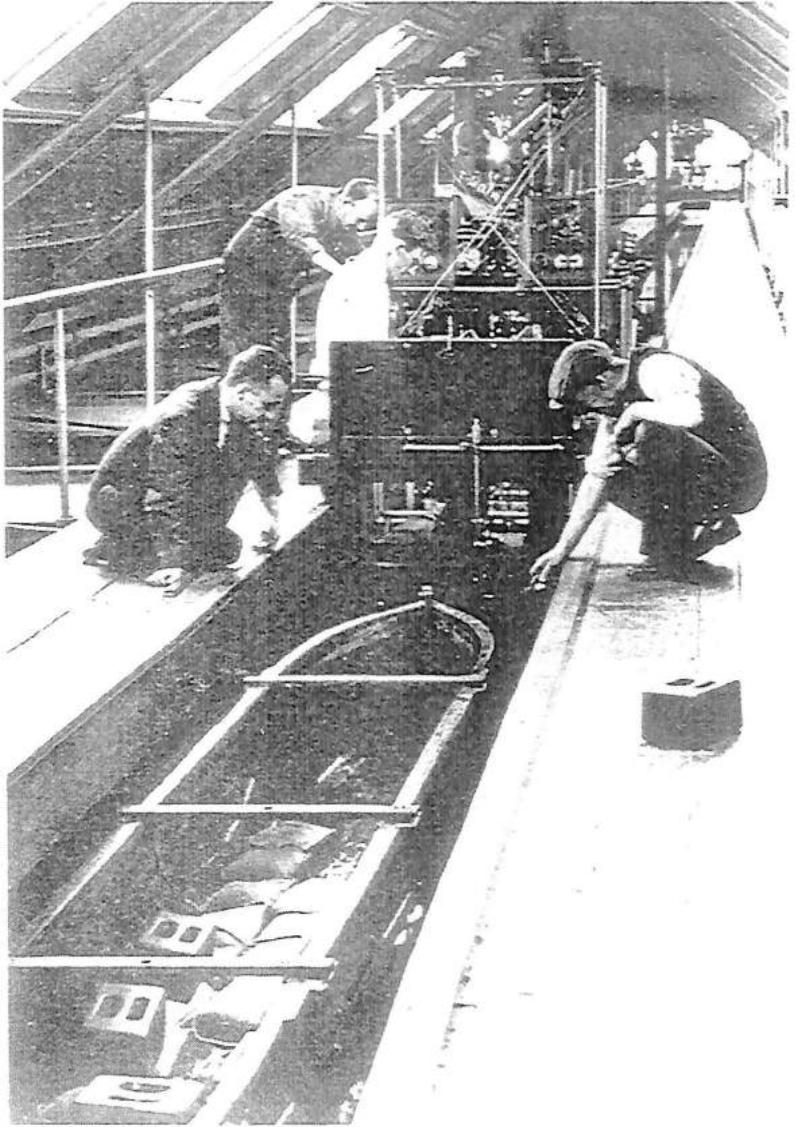


Figure 2. Staff of the Leven Experiment Tank, ballasting a paraffin wax model in preparation for hull resistance tests c.1937. [Reproduced courtesy of West Dumbartonshire Libraries & Museums Service]

Although the Admiralty Research Department used it to stabilise gun platforms on escort destroyers during World War II, it was not until the late 1940s that the Denny-Brown Stabilizer came into widespread use on merchant vessels. The installation of the stabilizer on the Queen Mary and Queen Elizabeth in the 1950s enhanced its prestige as it scotched the once held notion that vessels of this size did not need them.

Volpich and Walker continued to design work on the stabilizer in the 1960s, the former's linguistic ability proving valuable for liaison with German and Italian firms who took out licences to manufacturer the stabilizer.^{xlvi} An interesting, if little known link also connects the Denny Tank's stabilizer research with that of Purvis's Nagasaki Tank. The first Superintendent of this Tank was Motora. As early as 1922 Motora speaks of an invention of his own which he had tested there: *'oscillating bilge fins, projecting one from each bilge of a ship... The fins are driven by steam, hydraulic or electric power and the control of the power is gyroscopic'*.^{xlvii} This sounds remarkably similar to the Denny-Brown stabilizer and although Motora's design was not developed, it cannot be denied that Purvis's tank was setting the pace in Japanese ship design. It is still improbable that Purvis had any direct discussions with Volpich or Walker on ship stabilisation: he retired in 1917^{xlviii} and would have been over 80 years of age at the time they were starting their careers.

By the 1960s Denny was being crippled by the costs involved in developing the world's first sidewall hovercraft, combined with an extensive yard modernisation programme in the 1950s. No upturn in orders led to the decision to go into voluntary liquidation on August 19th 1963.^{xlix} The name of Purvis lapsed further into obscurity at this anxious time.

Froude, Denny, Mumford, Walker and Volpich are still the names we most associate with the Dumbarton Tank today, yet it was Purvis who set it up and ensured its place at the forefront of nineteenth-century design technology. It is poor reward to him that he remains so little known in this country despite his work on ship testing and stability which helped drive the industry forward. What distinguished him, and all associated with the Leven tank during its first century, was a life-long commitment to improving ship design, pursued with great single-mindedness. Instead of short term profits, the Denny philosophy was to put research and development to the fore. It was research and development which was to show its worth time and time again

throughout the Tank's century long working life and still does so today in its influence on contemporary ship design.

Owned by the Scottish Maritime Museum since 1985, the Denny Tank survives today as an enduring link between the Clyde's shipbuilding past, present and future.

ⁱ Fred M Walker, *Song of the Clyde*, (Patrick Stephen) p. 49

ⁱⁱ Walker, *Song of the Clyde*, p. 49

ⁱⁱⁱ Anna Sproule, *Port out, Starboard Home* (Blandford, 1974), p. 96

^{iv} David John Lyon, *The Denny List part 1* (National Maritime Museum, 1975) pp. 126-7

^v Walker, *Song of the Clyde*, p. 49

^{vi} David John Lyon, *The Denny List Part 2*, (National Maritime Museum, 1975), pp.31-2

^{vii} Lyon, *The Denny List*, pp. 31-2

^{viii} Lyon, *The Denny List*, pp. 31-2

^{ix} Lyon, *The Denny List*, pp. 256-257

^x Scottish Maritime Museum, Denny Tank Archive, Model Book for models 91-100 and Model Book for models 101-110

^{xi} Lyon, *The Denny List Part 2*, pp. 31-2

^{xii} Alexander Balmain Bruce, *The Life of William Denny* (Hodder and Stoughton), pp. 140-1

^{xiii} Bruce, *Life of William Denny*, pp. 140-1

^{xiv} Admiralty Research Establishment Collection, Letter N Barnaby to R E Froude, 23 February 1881

^{xv} David John Lyon, *The Denny List part 4*, (National Maritime Museum, 1975)

^{xvi} Scottish maritime Museum, Denny Tank Archive, Letter William Froude to William Thompson, 18 March 1973

^{xvii} Admiralty Research Establishment Collection, letter from F P Purvis to R E Froude 1 May 1883

^{xviii} *ibid.*, 27 February 1902

^{xix} Admiralty research Establishment Collection, Letter from William Denny to R E Froude, 1 May 1883

^{xx} Obituary Notice, *The Rock*, 8 April 1926

^{xxi} Maurice E Denny, 'The Denny Experiment Tank', *transactions of the Institution of Naval Architects*, 97, (1955), p. 24

^{xxii} *ibid.*

^{xxiii} *ibid.*

^{xxiv} Scottish Maritime Museum, Denny tank Archive, Model Test Record Book no 36

^{xxv} *ibid.*

^{xxvi} William Denny & Bros. Souvenir Book (1932), p. 69

^{xxvii} P J Aldridge, 'The development of an early helicopter', *Journal of the royal Aeronautical Society*, 58 (1954), p. 558

^{xxviii} *ibid.*

^{xxix} Obituary notice, *The Rock*, 8 April 1926

^{xxx} J F C Conn, 'University of Glasgow, Department of naval Architecture and Ocean Engineering 1883-1983' in *Proceedings of the National Maritime Museum Conference 'One Hundred Years of Change'*

^{xxxi} Letter Purvis to R E Froude, 11 November 1886

^{xxxii} Bruce, *Life of William Denny*, pp. 440-442

^{xxxiii} Obituary Notice of Purvis, *Transactions of the Institution of Engineers and Shipbuilders in Scotland*, 83 (1939-1940), p. 409

^{xxxiv} Archibald Denny, Contribution to discussion paper, F P Purvis, 'Japan's contribution to naval architecture', *transactions of the Institution of Naval Architects*, 67, (1925), p. 35

^{xxxv} Purvis to R E Froude, 27 February 1902

^{xxxvi} Obituary Notice of Purvis, *Transactions of the Institution of Engineers and Shipbuilders in Scotland*, p. 409

^{xxxvii} Obituary Notice of Purvis, *Transactions of the Institution of Engineers and Shipbuilders in Scotland*, p. 409

^{xxxviii} Lyon, *The Denny List part 4*, p. 82

^{xxxix} D K Brown, 'Historic hydrofoils of the Royal Navy', *Warship* 14 (1980), p. 104

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- ^{xi} Obituary Notice for Volpich, *Transactions of the Institution of Engineers and Shipbuilders in Scotland*, 115 (1971-1972), p. 416
- ^{xii} H Volpich & I C Bridge, 'Paddle wheels, part I: Preliminary model experiments', *Transactions of the Institution of Engineers and Shipbuilders in Scotland*, 98, (1954-1955), pp. 229-234
- ^{xiii} Volpich & Bridge, 'Paddle wheels, part I', pp. 229-234
- ^{xiii} Maurice E Denny, 'BSRA resistance experiments on the *Lucy Ashton*', *Transactions of the Institution of Naval Architects*, 93, (1951), p. 41
- ^{xiv} Scottish Maritime Museum, Oral History Project, Interview of William Walker by Bill Sutherland, Spring 1988
- ^{xiv} Scottish Maritime Museum, Oral History Project, Interview of William Walker by Bill Sutherland, Spring 1988
- ^{xv} Obituary Notice for Volpich, *Transactions of the Institution of Engineers and Shipbuilders in Scotland*, 115 (1971-1972), p. 416
- ^{xvi} Purvis, op cit ???????
- ^{xviii} Obituary Notice of Purvis, *Transactions of the Institution of Engineers and Shipbuilders in Scotland*, p. 409
- ^{xix} Lyon, *The Denny List part 1*, p. 2

William Forbes of Callendar : businessman and landowner.

Elsbeth Reid
Falkirk Museums

William Forbes was a successful businessman from Aberdeenshire who established a copper business in London and made a fortune, mainly through his contracts to supply copper to the Admiralty. Like so many other businessmen of his time, William's ambitions were to use the fortune he made out of his copper business to set himself up as part of the landed gentry. Although he knew nothing of farming or estate management, he transformed these somewhat run-down and old-fashioned estates with the introduction of agricultural improvements, and he renovated and refurbished Callendar House, turning it into a comfortable country seat.

Over the last few years, Falkirk Museums has been transforming Callendar House from a derelict A-listed building into a modern museum. The early stages included the restoration of the 1820s kitchen and the establishment of the History Research Centre, which is housed in the restored Victorian library and holds the archives for the Falkirk Council area. The last stage of restoration work concentrated on the second floor of the house. This is now used for a new permanent exhibition, which looks at the life and times of the first William Forbes of Callendar and his son, another William Forbes of Callendar. Between them, they provide us with an opportunity to look at changing life in Scotland, and in Falkirk in particular during the period 1750-1850.

The Forbes of Callendar Papers, forms our main source of information on the family and covers the period 1530-1950. The bulk of the material is the correspondence and other papers of the first William Forbes from about 1770 until his death in 1815. The collection also includes a large quantity of letters to the second William Forbes, who was the MP for Stirlingshire, 1835-38 and 1841-55. The largest deposit of these papers was transferred to Falkirk Museums from the National Archives of Scotland in 1994.¹ We also hold other Forbes family papers and printed ephemera, which have been deposited separately to Falkirk Museums by the Forbes family. These include two music books and some poetry books of Lady Louisa Forbes, dating from 1824, as well as household inventories, rental books and a good

collection of estate plans and surveys. The records of Callendar Estates from about 1900 onwards are still in use for administrative purposes and remain with the Callendar Estates Office.

There is a wealth of information held amongst the correspondence and papers of the Forbes family. Through these records we can trace the growth and development of William's copper business and his gradual shift of interest to his landed estates.

The Forbes family originated in Aberdeenshire, descending from Sir Alexander Forbes, second laird of Pitsligo. William Forbes of Callendar, born in 1743, was the second son of William Forbes, a coppersmith in Aberdeen and his wife, Janet Dyce, who was the daughter of the Rev. William Dyce of Belhervie, Aberdeen. William Forbes and his older brother, George, both entered the family trade of copper smithing. The business was established by their grandfather, George in the late seventeenth century in Aberdeen, and carried on by their father (1709-1762). The two brothers appear to have taken over the business following their father's death. We have not yet found any partnership records, but the two brothers were certainly in partnership together by 1771.

Also by 1771 William and George had leased a house at 62 Upper Thames St, London and were establishing the business there. William moved to London on a permanent basis and dealt with the London end while George remained in Aberdeen. From the correspondence of 1771-1774 it appears that maintaining the same business in two locations was not easy. George outlined the problems and discussed the options in a letter to William in December 1774ⁱⁱ. One option was to continue the partnership, but to improve communications by sending weekly accounts to each other. This George felt was impossible, as written accounts, even on a weekly basis, could not convey information as well as personal discussion. A second option was to trade only in London and pass the Aberdeen end to their two younger brothers as a separate business, but this George was reluctant to do because trade was so poor in Aberdeen. In fairness to their brothers he felt that they would have to give them sufficient funds to carry on the trade until it improved, "*for to resign the trade to Gordon & Co would be an unparalleled degree of meanness to say nothing of affection for our brothers*"ⁱⁱⁱ. George also questioned whether the business in London was sufficient to maintain both William and George, commenting

And if it would, I should be obliged to sell at a disadvantage what furniture I have bought here. And query whether or not were I residing in London and in partnership with you we could (you being single and I married) settle accounts to mutual satisfaction^{iv}

The partnership was ended in April 1775 and the business separated into two.^v The two brothers remained in close contact and the two businesses continued to co-operate. William continued to provide supplies for his brother's business and the two regularly offered each other advice and information. George developed an export trade with Russia, Sweden and Danzig while William concentrated on government and English trade.

After their two businesses were separated, William moved into "more commodious accommodation" in 1 Primrose St, London.^{vi} The number of employees increased along with the move. In 1773 and 1774 William employed 12 men on average^{vii}. By December 1777 William employed 9 copper smiths, 3 brassers and 18 founders on a regular basis, with 4 additional smiths on piece work and 10 smiths on weekly work. The following year William began to keep his accounts in ledgers, instead of bundling his accounts together, and the number of men regularly employed levelled off at around 30.

William's most lucrative trade was with the Board of Commissioners for the Navy. During the 1770s he sold copper nails and bolts to the commissioners and by 1776 he was also supplying the Commissioners with copper sheeting to cover the hulls of ships. The ships were sheathed in copper after they were launched^{viii}. In one draft advertisement he stated

We take the liberty of advising that we make Coppers of all kinds at Fourteen pence per pound. Be pleased to observe that Copper's of our making are doubly planished and put together with forge nail's rivetted hole which keep the seams from leaking. We also make the Bottom's of one piece provided they are not required above Ten feet diameter at bottom, the advantage of which is that Bottom's of this kind without Nail's are lightest and will laste much longer than pieced Bottom's^{ix}

It was of course from this trade that William earned the nickname, "Copperbottom". His trade with the navy was not confined to construction, however. He also provided copper equipment and in 1778 we find he supplied the surgeon on the HMS Victory with copper pots^x.

William dealt with all the main Navy Dockyards, including Plymouth, Portsmouth, Sheerness and Gravesend. It was an extensive trade and William made his fortune with it. Despite the lucrative nature of these contracts, however, William's relations with the navy were not always amicable. There are many letters from different dockyards demanding instant action in dispatching overdue bolts, nails and sheets which were holding up construction and repair of ships. In December 1780 William evidently hit something of a production crisis. On the 2nd, William Lance of Woolwich wrote complaining that

The Nails you sent yesterday are all made use of and we are now standing still for want of more. The Shipwrights now work till Eleven o'Clock at night and are to work all day tomorro. Mr Nelson will send up a Boat this afternoo. It will be at the Tower by three o'clock waiting for what you have ready. I desire you will get them shipd as soon as possible and dispatch the Boat back again^{xi}

Robert Kidd of Margate also complained that the delays were so great in the construction of a cutter that "the Admiral threttens to Turn the Cutter out of the Service"^{xii} and if this should happen the owners will demand that Forbes should be held responsible. William's draft reply blames the want of brass and refutes all responsibility.^{xiii}

By the end of December, Peter Baker is so far behind in the construction of the HMS Assistance that he wrote to the Navy Commissioners directly, complaining that the ship

is now finished, the launch laid and everything compleated in order to launch the Ship next Spring had not Mr Forbes disappointed me of the Copper Braces, Gudgeons, Horseshoe staples &c. Mr Raydon hath repeatedly wrote him for these articles and likewise for Bolts &c for the Ariel sloop of war but he hat not thought fit to answer him or to furnish me with wither. I am now obliged to discharge all my Shipwrights through Mr Forbes' neglect not having a Bolt left to put a Transom together with...^{xiv}

Despite these complaints, William continued to win contracts and to have production delays. In 1782 the kettle did not arrive in time for the "Princess Royal" and as it was impossible to make the temporary contrivance suggested by William, the Board was again to be informed.^{xv}

William also had many private customers. He built stills for Jamaica and the West Indies and produced other custom-built appliances.^{xvi} One of William's more famous customers was James Watt who ordered two "Education steam pipes"^{xvii} from him. Watt had exactly the same complaints about William as the Navy. The pipes were ordered in January 1778, to be made up to a plan supplied by Watt, and in March, Watt's partner Matthew Boulton wrote twice to try to speed William up. In April Watt wrote complaining of the delay and in May withdrew his order and asked for his plans back because William was clearly unable to fulfil the order.^{xviii} Although the plans have gone, the detailed instructions Watt gave for the construction of these pipes are in the Forbes papers.

They are both to be of the same dia[meter] viz 10 inches one part & 12 another, their thickness is to be exactly one sixth of an inch, They are to be joined together by Flanches where drawn & these Flanches are to be of the same thickness as the Body of the pipe. The pipes are to be hard soldered in the strongest & tightest manner and so as to have no air holes as the smallest even an almost imperceptible one would stop the engine. The Flanches are to have a short socket about an inch long raised upon them by the hammer to fit the pipe and then to be hard soldered on at the proper angles.

At the [?] of these pipes the injection pipe enters as drawing and a hollow Boss of thin copper is to be fitted to the [?] there (for the purpose of holding soft solder) in this Boss must be hard soldered a tapering tube about 6 inches long the narrow end of which must fit the outside of the injection pipe and the other end to be one quarter inch wider all round. This pipe and the injection pipe itself must be one tenth of an inch thick. No hole is to be made in [?] of the pipe over the boss to be soldered on that must be done upon the spot.

The injection pipe is 3.5 inches dia[meter] its length & form are drawn in two views. There is another boss & socket to be fitted to the descending part of

the pipe just below the flanch to receive what we call the Blowing pipe which pipe is to be the same dia[meter] as the injection pipe. To the ends A & B of these pipes are to be fitted two Brass claches well ground and made according to drawing, the eye by which they are lifted is to be 3/4 inch thick and the stems must be securely fixt into the Clacks. These Clacks are to be soft soldered into the ends of this respective pipes so that with the clacks in they shall be of the lengths drawn in the front view.

They must be all of the best workmanship, as to price I shall only observe that they come in competition with Iron pipes and I hope you will fix it so as to supercede them^{xix}

While William was based in London, he was a useful contact for his Aberdonian friends and acquaintances who wanted things done in London. One acquaintance was James Dun, whose son, Lieutenant Alexander (Sandy) Dun got himself very thoroughly into debt. Sandy tried to extricate himself by signing over half his salary to a merchant in London, but things went from bad to worse. When James enlisted William's help, Sandy was in poor health and his father believed he might be starving.^{xx}

In April 1773, William was asked to find out how bad things really were, and to provide Sandy with a weekly allowance of between five and six shillings. By April 1774 Sandy had asked William to pay off so many debts, that the final straw was a bill of £11-12-11.5d payable to The Ship & Swan Tavern.^{xxi} William must have refused, because a week later Sandy was put into Newgate Prison by the owner of the tavern. Over the next year, James Dun made strenuous efforts to get his son back to Edinburgh where he could keep a better eye on him.

The principal difficulty is how to get him transported. I suspect you would hardly be able to prevail on any of our Leith shipmasters to take charge of him in such a manner as to prevent him breaking loose and running away altogether^{xxii}

I have enjoined the man to take care & prevent him getting on shore if the ship should touch at any port by the way; & to prevent him from getting Legirons, which always has a very bad effect on poor Mr Dun, but I have strongly recommended to him to do this with as little severity as possible^{xxiii}

William's involvement with this sorry episode was principally as the local financial source. He advanced money to Sandy, which James Dun repaid, and he tried to sort out Sandy's debts. However, William did not provide the worried father with the details of Sandy's living conditions and health that James frequently asked for.

what made me uneasy was this; that though I have several times begged you to let me know, what his condyion was, how he was treated and how I could any way contribute to his recovery, yet I have had no answer to these questions^{xxiv}

In 1786 William went into partnership with his younger brother, David, whom he had employed for the previous few years. This lasted until 1793-94 when the partnership was dissolved and the business sold to David.^{xxv} Although David's letters to his brother after 1794 occasionally included some information about the business, William effectively retired from the copper smith business with the sale.

What occupied William so much was his new role as a landed gentleman. William's aim was to acquire landed wealth and the social standing that went with this. William was as a successful businessman, a self-made man. He was well established as a wealthy member of the manufacturing class in London, but this was not the height of his ambition. Like so many others of the merchant classes he wanted to invest his wealth in something more tangible, in land and property, and his social aspirations were to become part of the landed gentry.

William began looking for land in 1781. He was strongly advised by George to buy an estate near Aberdeen on the grounds that it would be easier to collect the rents while William was in London. A friend, John Lumsden, urged him to purchase in his own country and so please his friends and his mother and to "*let allon these Forfite estates'*^{xxvi} but William soon turned his attention to the forfeited estates. This was a long-term investment for William and one of his early fears was the restoration of the Jacobites, but his brother George encouraged him to continue with the forfeited estates, commenting that

The hazard you speak of in purchasing of the forfeited estates I think very small because I think that in the event of a revolution there is hardly any chance that the nation would revert to the Stuart race.^{xxvii}

After William purchased Callendar Estates, these fears were raised again with the 1784 compensation to the descendants of former owners of the forfeited estates of 1745. Despite the efforts of the Earl of Errol and Sir Alexander Livingstone to lay claim to Callendar, the 1715 estates were not involved in the compensation.

By all accounts the purchase of Callendar Estates came as a surprise to both the Scottish establishment and to most of William's relatives. There is a rather odd letter from John Abercrombie, William's brother-in-law, commenting that there is amazement in Aberdeen at William's purchase.

what seemed to astonish them was where such a large sum of money was to be got^{xxviii}

Some relatives wrote to congratulate him, having seen the purchase in the newspaper.

The stories surrounding this purchase suggest that there had been an assumption that the Earl of Errol, son of the executed Earl of Kilmarnock and former tenant, would purchase the estate back into his family. The Scottish establishment was somewhat put out that an 'incomer' had purchased the estate instead. T.C. Smout notes that John Ramsay of Ochtertyre commented somewhat caustically that the incomers to Stirlingshire at this time were mainly of three types: "*adventurers returned with colonial money from the East Indies, profiteers who had done well out of Government contracts and prize money in the wars, and Glasgow tobacco merchants*"^{xxix}. Forbes certainly fitted into the second of these categories and his own family seem unaware of how wealthy he had become on Navy contracts.

William spent the ten years after purchasing Callendar estates in improving Callendar House and reforming the estates while continuing on his copper business. He spent part of his time in London and part at Callendar House, using his younger brothers, David, James and Robert, as agents on his behalf to manage aspects of his property and business in his absences from each.

Together the Callendar and Almond estates were made up of some 8,000 acres of land, of which only 200 acres had been enclosed when William bought the estates in 1783. About ten years later, the Rev James Wilson in the Old Statistical Account for the parish of Falkirk is able to comment that:

Almost the whole of these estates is now inclosed and subdivided. The fences are so much as possible drawn at right angles to one another; the ridges are straightened; and the wet parts drained or in the train of being done with all convenient haste^{xxx}

As a businessman, William had no previous experience of estate management. At first he rejected the idea of employing a factor, writing to one applicant that

I propose to reside several months in the year at Callendar House and shall be my own Factor^{xxxi}

However, he actually used three of his brothers as factors during his absences and he sought advice from a wide variety of sources, including friends and acquaintances in Aberdeenshire. There are a number of letters which contain quite detailed advice on different aspects of enclosures and other fashionable improvements and it appears that William was determined to make his new estates as modern and as profitable as he could. One piece of advice he evidently acted on was from John Lumsden in Aberdeen (who had previously advised him against purchasing a forfeited estate). Lumsden recommended removing all the tenants from his lands, enclosing them, and then re-advertising the lands and accepting the best offers for them. In particular, he advised accepting offers of long leases, which he considered would give better attention to the land and a higher offer of rent, recommending leases of three times 19 years as the best.^{xxxi} The Old Statistical Account shows that this advice was heeded, commenting that:

It is one distinguishing feature in the improvements of Mr Forbes that they are intended to be completed before he let the land in long leases; whereas it is common to carry on improvements after the farms are in the possession of tenants^{xxviii}

There must have been a cost to the existing tenants in all these laudable improvements. Again, it was John Lumsden of Aberdeen who advised William on the way to remove tenants

I am showr in the way ye inform me that there will be no difficulty in removing your tenants from the lands of Callendar &c. In the first place for saving you all

expençe I think you shold call for Renunciations from them all yet I should think either in prudence or Policie they will not refuse if they want to make a New Bargain with you yet if they refuse to doe then you will cause raise a Simons of Removall befor the Shereff.^{xxxiv}

Not all the tenants meekly sent in their renunciations when asked, and William had to remove several tenants through the courts, giving the lie to the rather generous comments of the Old Statistical Account:

The whole farms were out of lease and the tenants were all removed as soon as they could provide themselves with other situations in order that there might be no obstruction to the intended improvements^{xxxv}

As well as undoubtedly antagonising his former tenants, William encountered a number of persistent problems in the early years from tenants and local people who had been in the custom of collecting wood from Callendar Wood or taking coal from his coal seams. There were also assorted rights to grass, wood and grazing, which were in dispute with other landowners, including the Earl of Errol, who owned lands adjoining Callendar Wood. William, of course, tried to extinguish these rights and customs, employing men to patrol the woods and prevent people from taking his property. The cartoon, "Copperbottom's Retreat" by John Kaye shows something of the hostility between William and his former tenants and neighbours in Falkirk. In the cartoon, William is shown fleeing, believing that Callendar House had been set on fire by an angry mob whereas in fact the glow he could see was from the Carron ironworks.

Despite his unpopularity, William was now a significant member of the local landed gentry, and his refurbishment of Callendar House was in keeping with his new social status and aspirations. He renovated and re-furnished the entire house, adding a new wing to the building and ripping out old rooms and replacing them with new structures. Many of the new furnishings and household items were brought to Callendar from Edinburgh and London: new glass for the windows, new dinner services, knife trays, clocks, carpeting, tables and chairs. In 1785 William purchased his new tableware from Wedgwood.^{xxxvi} He also purchased a circular tea table from William Hamilton of Edinburgh^{xxxvii} and went back to the same firm for his mahogany dining table with green cloth covers in 1786^{xxxviii}. One feature of his purchasing was that William generally

preferred the newest fashion. We find, for example, that when he purchased his floor cloth it was the newest patent fashion, 5% higher in price than the old black and white type, which his brother described as "*quite antiquated*".^{xxxix} It was also claimed that the newer type of floor cloth would last twice as long, although it took ten weeks to dry.^{xl} As well as looking for the latest fashion, however, William was not one to spend money carelessly. We find him checking prices and quality in his instructions to his brothers. In 1787 he asked David to provide him with prices of a Turkey Carpet and an imitation Persian carpet^{xli} and it was the least expensive at 40 which he chose instead of the first class at 90 or even the second class at 50. When building the new wing he also directed that:

The wing being for the Servants Rooms only is to be finished in the cheapest way^{xlii}

The servants were not entirely ignored however, quantities of supplies were also ordered for their outfitting as well as clothes and shoes. In January 1787, William instructed David, then in London, to purchase 1 cwt of hair powder^{xliii} and in April he asked for 12 cakes of Bayley's shoe blackener.^{xliv}

William tried to maintain personal or family supervision of the entire re-furbishment but he was caught out in at least one area. He ordered the best quality crown glass for his window panes but these arrived broken, having been badly packed and he had to re-order, vowing to supervise the packing himself.^{xlv}

By November 1787, William was able to claim that the house was finished except for the want of locks. The correspondence shows that William continued to improve his country seat, but it was in 1787 that William embarked on the next stage of becoming part of the establishment: he married. William's first wife was Margaret McAdam, daughter of John McAdam of Craigen Gillan. She died childless in 1801 and in 1806 William re-married. His second wife was Agnes Chalmers, daughter of John Chalmers of Westfield, Old Machar, Aberdeen, and this union produced two sons and three daughters - quite enough to ensure the continuation of the family line.

William's first contract of marriage is in the Forbes papers, but little else of the negotiations leading up to the marriage. The process of marriage does seem to have been a business transaction for William and while not a secret from his family, certainly

something he preferred to conduct with the minimum of fuss. Rumours had been flying before his marriage. William's uncle wrote to him in September 1787:

I hear you are to be married to a Lady of the first Beauty in Britain with a tolerable fortune^{xlvi}

Robert certainly knew of his impending marriage - writing to David in November 1787, he comments that:

Our brother set out from this [Callendar House] yesterday morning for Ayrshire to be married. He proposes being at Callendar again about Christmas^{xlvii}

Many of his relatives, however, seem to have learned of his marriage from the newspaper announcement. Letters to William congratulating him all mention having seen the report in the newspaper. Even William's mother wrote to Robert in December 1787 to ask where William was and if the announcement was true.^{xlviii}

The Forbes papers also give an insight into other customs and traditions. Although Christmas was not celebrated as a public holiday in Scotland until recently, we know that the Forbes family did mark the season. William, while in London, records Christmas gifts to his employees in his accounts:

Gave the Coppersmiths 2/- each for a Christmas.... Gave the Founders 2/6 among the whole for strong beer on Christmas Eve^{xlix}

One year, three of William's female relatives sent him Christmas cake and the letters written in late December and early January almost invariably include some form of seasonal greeting.

There is a wealth of information held amongst the correspondence and papers of the Forbes family. The papers have given us a fascinating glimpse into the work, interests and domestic life of a self-made man of the late eighteenth century. However, it is hard to know whether the first William Forbes was accepted socially with his background in business. He died in 1815, leaving a nine year old son, who was brought up by a relatively young mother and a set of estate trustees. The second William Forbes went to Eton and Oxford, did the Grand Tour, married Lady Louisa Charteris, daughter of the Earl of Wemyss, and became the Conservative MP for Stirlingshire. Although local

stories suggest that the first William never quite overcame local prejudice, his son certainly did gain acceptance and became part of the landed gentry.

ⁱ Accession A727, previously deposit GD171 in the National Archives of Scotland.

ⁱⁱ A727/10/54

ⁱⁱⁱ *ibid*

^{iv} A727/10/54

^v A727/1475

^{vi} A727/31/18

^{vii} A727/1438/30

^{viii} A727/45/9

^{ix} A727/22/1 1775 Mar 30th

^x A727/53/26

^{xi} A727/98/6

^{xii} A727/98/20 Robert Kidd, Margate to William Forbes, December 1780.

^{xiii} A727/98/21 William Forbes draft reply

^{xiv} A727/98/40

^{xv} A727/127/34

^{xvi} For example, A727/30 describes the completion and delivery of some stills

^{xvii} A727/50/1 James Watt, Birmingham to William Forbes, Primrose St, London. 18 Jan 1778

^{xviii} A727/50/2-5

^{xix} A727/50/1 James Watt, Birmingham to William Forbes, Primrose St, London. 18 Jan 1778

^{xx} A727/11/1 James Dun to William Forbes, Upper Thames St, London, 6 April 1773

^{xxi} A727/11/5 Alexander Dun, Newgate Prison to William Forbes, upper Thames St, London, 12 April 1774

^{xxii} A727/11/21 James Dun to Sir William Forbes, lawyer, 27 June 1775

^{xxiii} A727/11/24 Sir William Forbes, lawyer, to William Forbes 21 July 1775

^{xxiv} A727/11/12 James Dun to William Forbes, 24 Dec 1774

^{xxv} A727/1882

^{xxvi} A727/145/49

^{xxvii} A727/116/17

^{xxviii} A727/118/36. John Abercrombie, Aberdeen to William Forbes, 24 August 1783

^{xxix} T C Smout *A History of the Scottish People*, p283

^{xxx} Old Statistical Account, Stirlingshire. p298

^{xxxi} A727/155/14

^{xxxii} A727/155/6

^{xxxiii} Old Statistical Account, Stirlingshire, p298

^{xxxiv} A727/155/6

^{xxxv} Old Statistical Account, Stirlingshire, p298

^{xxxvi} A727/224/3

^{xxxvii} A727/224/12

^{xxxviii} A727/242/29

^{xxxix} A727/298/6

^{xl} A727/307/2

^{xli} A727/268/16

^{xlii} A727/271/5

^{xliiii} A727/268/1

^{xliiv} A727/268/4

^{xli v} A727/268/13. A727/271/6

^{xli vi} A727/303/3 Robert Forbes to William Forbes, 10 September 1787

^{xli vii} A727/282/14 Robert Forbes to David Forbes, 23 November 1787

^{xli viii} A727/302/11 Janet Dyce to Robert Forbes, 8 December 1787

^{xli x} A727/1244. Account book, 1777.

The Darien Adventure

Rosemary M. Gibson
National Archives of Scotland

In 1698 Scotland tried to establish a colony in Darien, on the isthmus of Panama. The venture was intended to improve Scotland's poor economic position. A Privy Council working party on trade had in 1681 proposed a Scottish colony, *in some place of America* to provide new markets for Scottish goods and give Scots merchants a share in the profitable colonial trade from which they were excluded by the English navigation acts. Two unsuccessful attempts to establish colonies in America followed, then in 1695 the Scottish parliament set up the Company of Scotland Trading to Africa and the Indies. Merchants in London who wanted to break the monopolies of the East India and Royal Africa companies, actively encouraged the project. After vested interests in England stopped outside investment in the Company, the Scots raised £400,000 themselves.

Darien was suggested by William Paterson, one of the founders of the Bank of England. He intended a centre for world trade, where cargoes would be transferred over the isthmus, saving ships the journey round Cape Horn. The Company directors ignored warnings that the area was a vital part of Spain's central American empire and in 1698 sent off the first expedition. They took with them large quantities of cloth, shoes, stockings, hats and wigs, intending to trade with other colonies. The colonists suffered dreadfully from illness, the tropical climate and lack of provisions. They had little success trading and received no support from home. King William wanted to maintain peace with Spain and ordered English colonies to give no assistance. A second expedition sailed before they had firm news of the first and found the colony abandoned. Spain sent an expeditionary force against them and they finally surrendered in April 1700.

Darien resulted in the loss of 2,000 lives and a quarter of Scotland's capital. The Company's shortcomings were forgotten in the furious reaction to the loss of the colony and William and the English were blamed. The disaster was part of a serious crisis in relations between Scotland and England. It pointed up the difficulties of two parliaments pursuing competing economic policies under one crown. Union was put

forward as a solution to the impasse and in 1707 England secured the Hanoverian succession and Scotland finally got freedom of trade. The Company was dissolved and compensation paid through the Equivalent, administered by a company which became the Royal Bank of Scotland.

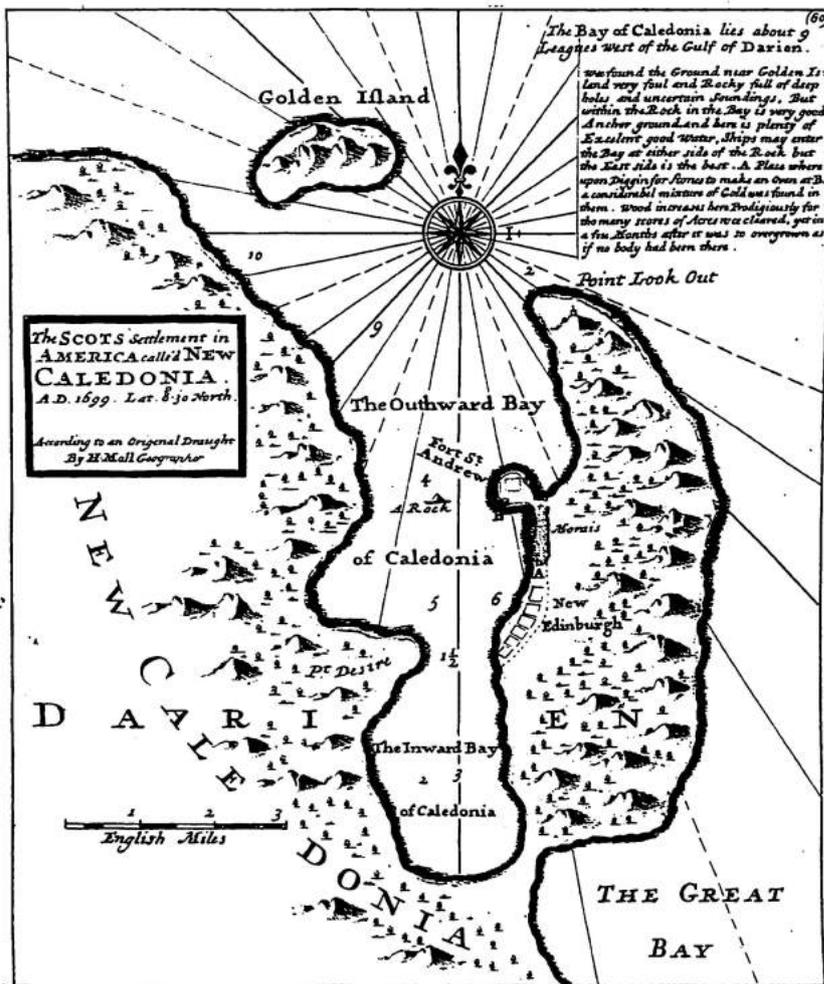


Figure 1. Map *The Scots Settlement in America calle'd New Caledonia A.D. 1699* Herman Moll [Reproduced by permission of the Trustees of the National Library of Scotland]

Though the strength of opposition to Darien is an indication of the threat the colony posed to Spanish and English economic interests, it is hard to see how the scheme could have succeeded as it stood. The directors failed to appreciate the strength of Spanish opposition, English protectionism and William's wish to maintain peace in Europe. Nor did they set up a support structure for the colony. Though the venture ended in disaster, Paterson's vision anticipated the Panama Canal by over 200 years.

To mark the 300th anniversary of Darien, the National Archives of Scotland and the National Library of Scotland compiled an exhibition drawing together for the first time Darien documents from several sources. With sponsorship from The Royal Bank of Scotland, a travelling version of the exhibition will go on tour from May 1999. A full text of the original exhibition, *The Darien Adventure*, is available from the National Archives of Scotland for £4.75 (inc p&p).

“All Change!”

Report of the Business Archives Council of Scotland

Surveying Officer 1995-1999

Johanna King

Business Archives Council (Scotland) Surveying Officer

Since the publication of the last edition of *Scottish Industrial History* there have been several changes in Surveying Officer personnel, and as such this report represents the work of all three incumbents: Frank Rankin, Jacqui Seargeant and Johanna King.

The past four years has been a time of consolidation and strengthening of existing relationships as well as the forging of new ones. Building on the Council's previous work with the insurance industry has seen the Scottish Life Assurance collection in Edinburgh supplemented. Further inroads into the world of insurance resulted in the establishment of a company archive at Scottish Equitable plc.

The Council has also maintained and further strengthened its links with the whisky industry. The establishment of a Heritage Centre at the Strathisla Distillery, Keith saw the centralisation of the records of Chivas' Northern Operations. The project combines the records of Strathisla, Glen Grant, Glenlivet and Longmorn Distilleries for the first time and saw the appointment of a consultant archivist/historian. The relocation of Macdonald and Muir Limited (now Glenmorangie Plc) has led to further Council involvement in the appraisal and integration of additional material into the existing collection.

The alcohol theme continues with further Council's collaborations resulting most notably with the survey of the records of James Burrough Ltd, Kennington and Alloa Brewery, Carlsberg - Tetley Alloa Ltd.

James Burrough Ltd, Kennington, London - this project represented the Council's one and only foray into foreign parts, it was a continuation of the report commissioned from Glasgow University Archives & Business Records Centre (GUABRC) by Allied Distillers, regarding their archival holdings. Although Burroughs are currently based in Kennington they are part of Allied Distillers Ltd, whose headquarters are in Dumbarton and have deposited their archives with GUABRC. The current

Kennington premises were under threat of closure at the time of survey, with operations either potentially moving to Dumbarton or another London site, it was therefore a matter of some urgency that any archival material was located and identified.

Alloa Brewery, Carlsberg - Tetley Alloa Ltd - This project was undertaken in conjunction with the Scottish Brewing Archive. The initial surveying work was somewhat of an emergency, as although production did not actually cease until summer 1998, the winding - down process was already very much underway from 1997. It was therefore felt, that it was vital to survey and remove any relevant material and arrange transportation to the S.B.A. as quickly as possible.

Other notable initiatives during the past four years have included a Records Management Seminar organised in conjunction with the Scottish Council Development and Industry, and "The South Lanarkshire Business Heritage Project". This project was established in conjunction with Frank Rankin, South Lanarkshire Archives and Information Management Service. It was apparent that the South Lanarkshire area had largely been neglected in terms of the surveying of business archives over the years. By applying a systematic geographic specific approach, as traditionally favoured by the BACS, a more comprehensive picture of the business community should be obtained. The project has also resulted in an article published in the Business Archives Council's Principles and Practice Number 75, May 1998.

¹ Frank Rankin became Senior Archivist at GUABRC in December 1995.

¹ Jacqui Seargeant left the BACS in July 1996.

1995-1996 - Surveys and Deposits.

1. **Association of Underwrites and Insurance Brokers**, Glasgow (additional).
2. **Brotherhood of Journeymen Coopers of Leith**, trade union, Edinburgh City Archives.*
3. **Dobbie's Ltd**, gardeners and nurserymen, Dalkeith.
4. **Holland & Sherry**, cloth merchants, Peebles.
5. **Levenmouth Trades Council**, Methil.
6. **McVittie Guest & Co**, bakers, Edinburgh.
7. **David Mitchell**, decorator, Peebles.

8. **RNVR Club**, Glasgow, Scottish Maritime Museum.
9. **Bruce Lindsay & Co Ltd**, coal merchants, Edinburgh.
10. **Royal Faculty of Procurators in Glasgow**, solicitors' body.
11. **Royal Scottish Corporation**, charity, London.
12. **St Columba's Church of Scotland**, London.
13. **JP Simpson (Alnwick) Ltd**, maltsters, Berwick.
14. **Smith Anderson & Co Ltd**, papermakers, Glenrothes.
15. **Steedman & Ramage WS**, solicitors, Edinburgh.
16. **Summerlee Heritage Trust**, Coatbridge.
17. **Veitch's Corner Shop**, drapers, Peebles.
18. **Whytock & Reid**, interior designers and furnishers, Edinburgh.

(* Deposited with Edinburgh City Archives).

1996-1997 - Surveys and Deposits.

1. **Airdrie Bowling Club.***
2. **Airdrie Female Benevolent Society.***
3. **Airdrie Friendly Society.***
4. **Airdrie Veterans Club.***
5. **Coatbridge Branch of the Amalgamated Engineering Union.***
6. **David Bell & Sons (Bakers) Ltd**, Shotts.
7. **Glen Grant Distillery**, Rothes.
8. **Longmorne Distillery**, Elgin.
9. **Monklands Steel Works Friendly Society***
10. **Tennent Ltd (Steel Roll Makers)**, Coatbridge*
11. **Royal St Crispin Lodge.***
12. **Red Cross Society.***
13. **Sons of Temperance - Airdrie Excelsior Division.***
14. **Stoddart Carpets Ltd.****
15. **Strathisla Distillery**, Keith.
16. **The Glenlivet Distillery.**
17. **Jonathan Harvey Ltd**, Funeral Directors, Glasgow.
18. **Marshall Food Group Limited**, Newbridge.

19. **Scottish Equitable plc.**, Edinburgh.
20. **Mentholatum Company**, Pharmaceuticals East Kilbride.
21. **McKenzie & Miller Ltd**, Funeral Directors, Leith.
22. The records of **Robert Nolan**, Glasgow (British Rail employee).
23. **TSB Bank plc.****

(* Deposited with North Lanarkshire Archives

** Deposited with Glasgow University Archives and Business Records Centre).

1997-1998 - Surveys and Deposits.

1. **Alloa Brewery**, Carlsberg - Tetley Alloa Ltd.***
2. Records of **All Saints Church**, Old Cumnock and Holy Trinity Church, Kilmarnock*
3. **The Barganny Coal Company Limited.** *
4. **Saul Bercott Ltd**, Jewellers and Diamond Specialists, Glasgow.
5. **James Burrough Ltd**, Kennington, London.
6. **Catrine Bleaching Works.** *
7. **T.A. Fyffe Ltd**, Funeral Directors, Hamilton.
8. **Gilmour & Dean**, Commercial Printers, Hamilton.
9. **Glenmorangie Plc**, Broxburn.
10. **Goodfellow & Steven**, Bakers and Confectioners, Broughty Ferry.
11. **Marshall Food Group Ltd**, Newbridge.
12. **Donald McLaren Funeral Directors**, Coatbridge.
13. **Motherwell Bridge Holdings**, Motherwell.
14. **Newmilns Burgh Records.** *
15. **George Panton & Son Ltd**, Jewellers, Glasgow.
16. **Peebles Hotel Hydropathic Peebles.**
17. **Rattray & Co.** Jewellers, Dundee.
18. **Scottish Council Development and Industry**, Head Office, Edinburgh.
19. **Scottish Equitable Plc**, Edinburgh.
20. **Scottish Life Assurance Company**, Edinburgh.
21. Records of **David L. Smith.** *
22. **Soldiers and Sailors Families Association**, Ayrshire Section. *

23. **Tate & Lyle (Sugars) Ltd, Greenock.**
24. **John Thomlinson Printers Ltd, Clydebank.**
25. **TSB Bank Plc.****
26. **Thomas Tunnock Ltd, Bakers and Confectioners, Uddingston.**
27. **West Sound Radio Plc (incorporating the records of Radio Ayrshire). ***
28. **Wolverine Proctor & Schwartz Inc, Glasgow.**

(* deposited with Ayrshire Archives

** deposited with Glasgow University Archives and Business Records Centre

*** deposited with the Scottish Brewing Archive

**** deposited with South Lanarkshire Archives and Information Management Service).

1998-1999 - Surveys and Deposits.

1. **Faculty of Actuaries, Edinburgh.**
2. **Crieff Hydro Hotel, Crieff.**
3. **Western Scottish Buses Ltd.***
4. **Scottish Amicable Life Assurance Society, Craigforth.**
5. **Thomas Gibson & Co., Carluke Milton Brick & Tile Works.***
6. **Kilmarnock Old Men's Benevolent Society.***
7. **Scottish Federation of Women's Suffragettes (Kilmarnock Branch).***
8. **Kilmarnock Young men's Biblical Association.***
9. **Association of Engineering and Shipbuilding (Kilmarnock).***
10. **Kilmarnock Infirmary Contributory Scheme.***
11. **Warwickhill Colliery Friendly Society.***
12. **Kilmarnock Abstainers Union.***
13. **Catrine Gas Light Company.***
14. **Fenwick & District Nursing Association.***
15. **Kilmarnock Burgh Merchant's Society.***
16. **Cumnock Model Lodging House Company.***

(* deposited with Ayrshire Archives)

**“Insure, insure, there’s nothing like insurance!”
An account of the second Joan Auld Memorial Training
Day, 17 May 1997**

Ann Jones
Archivist , Heriot-Watt University

The second Joan Auld Memorial Training Day, on the theme of insurance records, was held on 17 May 1997 in the impressive setting of General Accident Plc’s world headquarters in Perth. Business historians and archivists rewarded delegates, who braved the wild and windy March weather to attend, with a packed programme of lively and informative presentations.

The first speaker of the day, Jennifer MacEwan, Company Librarian, General Accident plc provided a fascinating introduction to the company’s archives and demonstrated how they charted General Accident’s growth, from its origins in Perth in 1885, to the status of a major international insurance group. A broader context for this case study was provided by Frank Rankin, Senior Archivist, University of Glasgow, in his overview of the survival and significance of insurance industry records within Scotland. His presentation reminded us of the invaluable role of the Business Archives Council Scotland Surveying Officer in recording such archives and promoting their preservation. Frank closed his presentation by leading his audience in a memorable rendition of the Insurance song, and its rousing chorus: “ Insure, insure, there’s nothing like insurance!” – which we agreed was a most unjustly neglected milestone in the history of advertising. This theme was developed by Janet McBain, Curator, Scottish Film Archive, who provided entertaining examples of how insurance companies, including Prudential and Eagle Star, marketed their services to cinema audiences in the 1920s and 30s.

Lunch and a tour of the General Accident headquarters were followed by an highly informative presentation by Edwin Green, Archivist Midland Bank (HSBC), and co-author of the ground breaking study: *The British insurance business: a guide to its history and records*. He gave an inspiring account of the wealth of information to be gleaned from insurance records by researchers across a wide spectrum of disciplines from economics to art and local history. As an example, he highlighted their

importance to students of business growth during the industrial revolution, who could use fire insurance records to trace the development of firms that have otherwise left few traces. Independent researcher, Dr James Gilhooley, provided practical evidence of the value of this approach. He demonstrated how he had combined evidence from fire insurance records and other contemporary sources, within a database, to build up a vivid picture of people and property in 18th century Edinburgh. A lively round of questions and discussion concluded the event, which was ably chaired by Steve Connelly, Perth and Kinross District Archivist and Peter Anderson, Deputy Keeper of the Scottish Record Office.

Thanks are due to Jennifer MacEwan and her colleagues at General Accident for generously hosting the Joan Auld Memorial Training Day. As well as to the organising committee, Michael Moss and colleagues, Janet McBain, Seonaid McDonald and Vicki Wilkinson, for an inspiring and enjoyable event.

Ports & Shipping
An Account of the Third Joan Auld Memorial Training Day,
16 May 1998

Patricia Whatley
Archivist, University of Dundee

This very successful tribute to the former Dundee University Archivist, Joan Auld was held on May 16 1998 in Dundee. It was the third Joan Auld Memorial Training Day which is hosted each year by an institution, business or organisation, in collaboration with BACS. Attended by over eighty delegates, last year's event was on the subject of 'Ports and Shipping' and was held, appropriately, at Discovery Point, on the harbour front of Dundee.

Professor David Swinfen, Vice Principal of the University and historian welcomed the delegates. This was followed by a tribute to Joan by Patricia Whatley, the current Archivist, in recognition of Joan's hard work and tenacity in building up and developing the archives, including the important business collections held by the University.

Chaired by Professor Tony Slaven, from the University of Glasgow, the presentations were headed by the Historiographer Royal, Professor Christopher Smout, who spoke eloquently on Scottish Trade with Norway, 1500-1750. Paula Martin who reported on a 17th century merchant skipper's journal, a relatively rare source, followed him.

Dr Louise Miskell and Dr Charles Scott, from the University of Dundee, spoke respectively on the development of Dundee harbour in the early 19th century and on a very useful source to shipping historians. The Ingram Shipping Lists, compiled by a former Shipping Correspondent for the Dundee Courier, consist of notes on ships built in Dundee, Arbroath, Perth and Fife, their subsequent history, builders, owners, masters etc.

The final speaker, Hazel Anderson, from the National Archives of Scotland, provided an illustrated presentation on a digitisation project. A subject of increasing relevance to archivists and researchers, the shipbuilding collections at the National Archives are

being scanned and the digital images stored and accessed through a searchable database.

The Scottish Film and Television Archive provided a compilation of extracts from the Archive showing Dundee bustling when the jute trade was thriving, this was shown before lunch, and the day ended with a wine reception. Throughout the day speakers and delegates were also given the opportunity to visit the former whaling ship, Discovery, berthed at the quay, which took Captain Scott to the Antarctic in 1901.

Joan Auld was the Archivist at Dundee University for more than 20 years till her tragic death in 1995 in a climbing accident in the Canadian Rockies. This event was a fitting tribute to her memory and reflected the high esteem accorded to her by her friends and professional colleagues.

Reviews

Bank of Scotland - A history 1695-1995

(Edinburgh University Press 1996 pp. xxxv, 1089)

Richard Saville

Alongside Alan Cameron's slimmer but no less scholarly *Bank of Scotland 1695-1995: A Very Singular Institution* (Edinburgh 1995), this volume offers a two-tiered approach to the Bank of Scotland's tercentenary reflections; a model other companies would do well to examine in future. In its breadth of scope and wealth of detail Saville's history is ambitious and a little awe-inspiring. But the author's transparent narrative style keeps the text accessible and he avoids a fall into the corporate-history trap of overwhelming the reader with hard-gleaned data.

As archivists will, the reviewer enjoyed the footnotes and bibliography almost as much as the text. These are comprehensive and clear and, together with the extensive appendices, should be an inspiration to historians to invest more time in archival research.

Where histories of financial institutions can often become recitations of acquisitions, mergers, re-structuring and lists of governors or directors, this book has much wider horizons. A core theme for Saville is Bank of Scotland as the bank of Scotland. Thus he weaves the story of the bank into the political and economic history of Scotland. In the latter will lie much of the interest for students of business and industrial history: Instances of the Bank's relationships with Scottish business illuminati such as J & P Coats, Napier & Co and Distillers Company Ltd add as much to the histories of the clients as to that of Bank of Scotland.

Among sources for sectoral business activity are useful expositions of the bank's role in the coal, iron and steel industries in the West of Scotland and later in the development of North Sea Oil.

With such *dramatis personae* as Henry Dundas, Sir William Forbes, James Lumsden and Lord Clydesmuir, the close interrelationship of Scottish polity and business is mirrored in the Bank of Scotland's development. As Saville makes clear, Bank of Scotland has made use of the nation's elite network on more than one occasion to

protect its interests. Indeed the Bank's occasional adoption of small 'n' nationalism (or perhaps more accurately of anti-London sentiment) is uncritically reflected in the book and is perhaps one of the few distortions in an otherwise balanced study.

Those seeking sources on business organisation or employment history may be disappointed with the relative lack of information on corporate structure or the experience of bank employees. But the book's aims are elsewhere. The book is a welcome and imaginative addition not only to the historiography of Scottish business, but to the list of standard texts in Scottish history. As a reference source for the last three centuries it is destined to be dipped into by far more readers than such a work would usually attract. It should find a place on many undergraduate reading lists. Both the author and Bank of Scotland are to be congratulated for having a vision beyond the straight-forward company history.

Bank of Scotland: A History is also a timely reminder of the value of a well-managed corporate archive (including those of Coutts & Co, The Bank of England and The Royal Bank of Scotland as well as Bank of Scotland itself) and of the business value in imaginative exploitation of and generous wider access to such an archive. It is to be hoped the work catches the attention of a few Managing Directors as well as historians in all fields.

Frank Rankin
South Lanarkshire Archives and Information Management Service

Film

Bothwellhaugh, Lanarkshire a 'lost' mining village 1962-65

Motherwell Heritage Centre 25 August 1999

Scottish Screen held a presentation, at Motherwell Heritage Centre, of selected extracts from 80 minutes of film taken by the late Mr. Joe Griffiths of life in and around the mining village of Bothwellhaugh between 1962-65. This film has already attracted a great deal of attention from the media, illustrated by the presence of a television film crew as well as photographers and journalists at this occasion. This is primarily because of the way that the film depicts Bothwellhaugh but also because the community still has an identity though the village no longer remains.

Janet McBain, Curator of the Scottish Film & Television Archive, gave a brief introduction as to how she first became aware of the footage and Scottish Screen came to be involved in its preservation. It was while developing a television project that she met Alistair Griffith, the son of Joe Griffith, and first viewed the material. Although she had seen similar works before, none were as '*compelling*' and '*emotional*'. Thanks to Alistair Griffith's generosity, the Scottish Film & Television Archive copied the film and due to grants from the Mickel Fund; the Gordon Fraser Charitable Trust and North Lanarkshire Council the subsequent preservation of the film was made possible.

Alistair Griffith then talked about the film and how emotionally involved in the project he was. The film meant as much to him as it did to his father. He, like several others at the screening, appear in the film and though it has no sound track Mr. Griffith kept up a lively, entertaining and revealing commentary. He was more than ably assisted by Bothwellhaugh villagers who were encouraged to share with the rest of the audience their knowledge of the characters and places depicted. As a consequence enhancing the enjoyment of the film.

The 30 minutes of extracts were predominately shot in colour on 8mm over the period leading up to, during and after the closure of the pit. They have a 'natural' style and reveal how surprisingly unselfconscious the Bothwellhaugh community was in front of Joe Griffith's camera. Most of the footage was taken out of doors, but in a wide variety of weathers from summer evenings to the cold winter of 1963. They are

remarkable in showing the commonplace: children playing in the street; collecting wood for bonfire night; children off to Sunday school; the local bus packed with chapel goers returning to the village on Sunday; the butcher's van selling in the street. However our knowledge of the subsequent history of the village made some of the scenes very poignant. Such as the last wedding that took place in the village; the closure of the Bothwellhaugh Church; the Griffith family leaving the village for the last time. Finally there are images of a deserted village with the abandoned houses awaiting demolition. The film is a wonderful evocation of life in a mining village.

John Hume, the eminent industrial archaeologist, touched upon the importance of the film in its depiction of a vanished way of life – a community living and working together. He regards the film as '*enormously important*' not as nostalgia, but as a film that '*will enrich the lives of many*'.

A video of the film was officially handed to North Lanarkshire Council, as represented by Councillor Robertson. It will be available to be viewed at Motherwell Heritage Centre, where no doubt it will continue to attract interest from locals and academics.

Simon Bennett
Glasgow University

明治廿三年三月廿九日付ヲ以テ家事向不得止事
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相成候趣本月六日付ヲ以テ管取局長ヨリ通
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不得止次第ニ付御來意ニ任テ可申候此段及
御回答候敬具

日本郵船會社長

明治廿三年三月九日

木村岡昌純

日本郵船會社
東京市丸の内區
本町一丁目

エー・アール・ブラウン氏

貴下