SCOTTISH INDUSTRIAL HISTORY

Volume 2.1 Autumn 1978

Cover Illustrations

Front Strathisla Distillery, Keith, Banffshire (NJ429511) founded 1786

Back A group of Aberdeenshire cast-iron bridges : top Methlick (NJ857375), J. & W. Smith engineers, 1844; middle Milltown of Rothiemay (NJ548481) James Abernethy & Co, contractors, 1872; bottom Tangland (NJ888361) James Abernethy & Co, contractors, 1864.

Scottish Industrial History is published jointly by the Scottish Society for Industrial Archaeology, the Scottish Society for the Preservation of Historical Machinery and the Business Archives Council of Scotland. Details of membership of these organisations may be had from the respective secretaries (see end page for names and addresses). The journal is edited by Dr. Charles W. Munn, Department of Finance and Accountancy, Glasgow College of Technology, Cowcaddens Road, Glasgow G4 OBA, and John R. Hume, Department of History, University of Strathclyde, Glasgow G1 1XQ. It is published three times a year. Contributions will be welcomed, and should be sent to either of the editors. The closing date for copy for volume 2, No.2 is 31st October 1978.

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Day-Level Drainage in Eighteenth Century Fife Coal Mines

by George Wilson

> "I am still working the level in stone, with two men in it day and night (except on Sunday). I give them 10s Scots a day, their bearers 4s Scots a day, the windles men get 6s Scots a day or night. I sharp their picks and furnish them all the candles they burn ....."
>
> David, Earl of Wemyss, 1670 (1)

Earl David's comments refer to a tunnel built to drain groundwater away from his rich coal near Methil. This was a common method of draining coal mines in the seventeenth and eighteenth centuries and although their remains may now be difficult to identify, these day-levels were vital features of the early coal industry.

The principle is a simple one. A tunnel or 'adit' was driven from a low point, normally on the coast or in a river valley, up to the underside of coal seams in higher land nearby. This lowered the water table, thus allowing deeper seams to be mined. Fife was thus in a particularly favourable position for the employment of day-level drainage, since many rich seams lay near the coast. Also, several streams had cut deep valleys, even gorges, which are known locally as 'dens'. As well as allowing access to outcropping seams these dens provided locations which invited the construction of day-levels.

A day-level is so called because it drains by gravity to the open air or 'day'. An engine level, on the other hand, is where the water collected by the adit had to be pumped to the surface, originally by horse - or water-gin but later by steam. The earliest day-levels appear to have resembled deep ditches, and were open to the air. Sinclair's work of 1683 so describes them (2), and the Earl of Wemyss, writing in 1662, states:-

> "Work the mine first by an opencast till ye come to the brae where ye take on stone or rock on your head; then go in with your mine ....." (1)

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(1) Gemmell, John, 'The Wemyss Coalfield', Trans. Inst. Min. Eng 36 1909 pp 556-7

(2) Sinclair, G., 'Natural Philosophy Improven by New Experiments' 1683, p 289

Although coal mining in Fife dates from the thirteenth century, day-level drainage does not appear there until 400 years later, when Lord Wemyss laid dry his workings near Methil by an adit driven from the shore. The technique was not new, however, and Bald hints at its early use (3). Certainly, a level was being planned in East Lothian in 1623, so it is possible that the equally well developed Fife coalfield saw day-levels in use long before the Wemyss family adopted the method on a large scale. However, Gemmell makes it clear that Earl David's father had driven a level at Barncraig some time well before 1670 (1), and the Earls of Wemyss are known to have been pioneers in the Fife coal industry. Also, few coal owners of the time could have afforded the capital outlay, so it seems reasonable to suppose that large-scale day-level drainage in Fife began near Wemyss Castle in the mid Seventeenth Century.

The method was to assume such an importance that almost 200 years later Landale was able to report that of 29 workable seams in East Fife, at least 16 were drained, in whole or in part, by day-levels (4). It is now possible to identify 27 individual day levels in the Fife coalfield, almost all of them dating from the eighteen century. They are listed in the table and their approximate locations are shown on Map 1. The mean length is about 2 km, despite the fact that Sir John Clerk believed it would rarely pay to drive a level more than 500 fathoms (less than 1 Km) (5).

Several of the Fife day-levels are known to have had long branches. The Fordell level, for instance, consists of a 5.5 Km main channel with about 3 Kms of branch channels, draining a total of six major pits. The Pitfirrane level, West of Dunfermline, has a branch known as the Balmule level which unites with the former about 500 metres North of Urquhart Quarry (Map 2).

The depth to which a day-level could drain the workings was limited by local base level and , ultimately, by Ordnance Datum. Consequently,

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(3) Bald, Robert, 'A General View of the Coal Trade of Scotaland' 1808, p 4.

(4) Landale, D., 'Report Regarding a Portion of the Fife Coalfield' Trans. High. & Agric. Soc. 4,1835, p 412

(5) Clerk, Sir John, A Dissertation on Coal, 1740 (SRO GD18/1069).

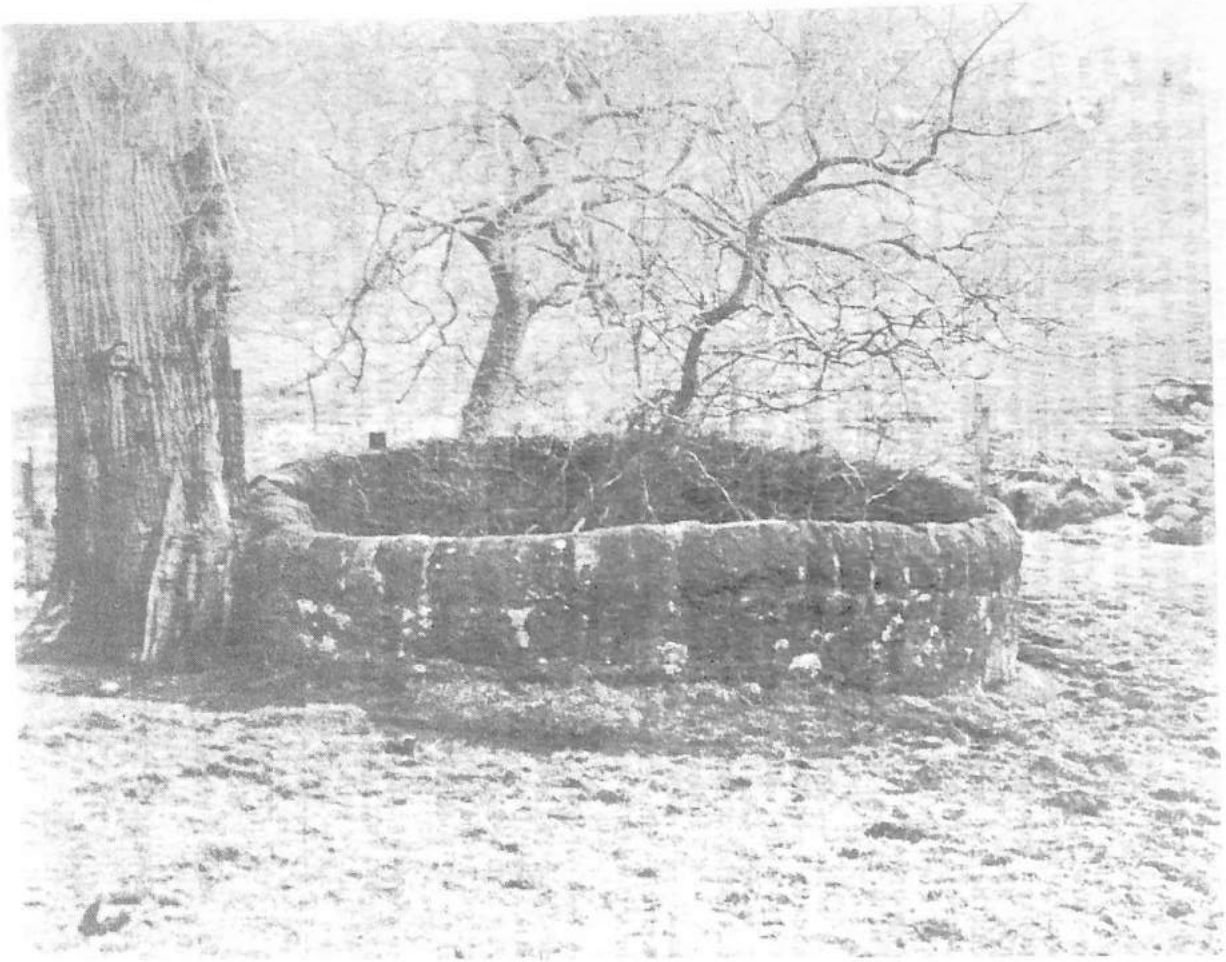

Plate 1 : Shaft sunk to the Urquhart level.
(Grid ref NT 081871).

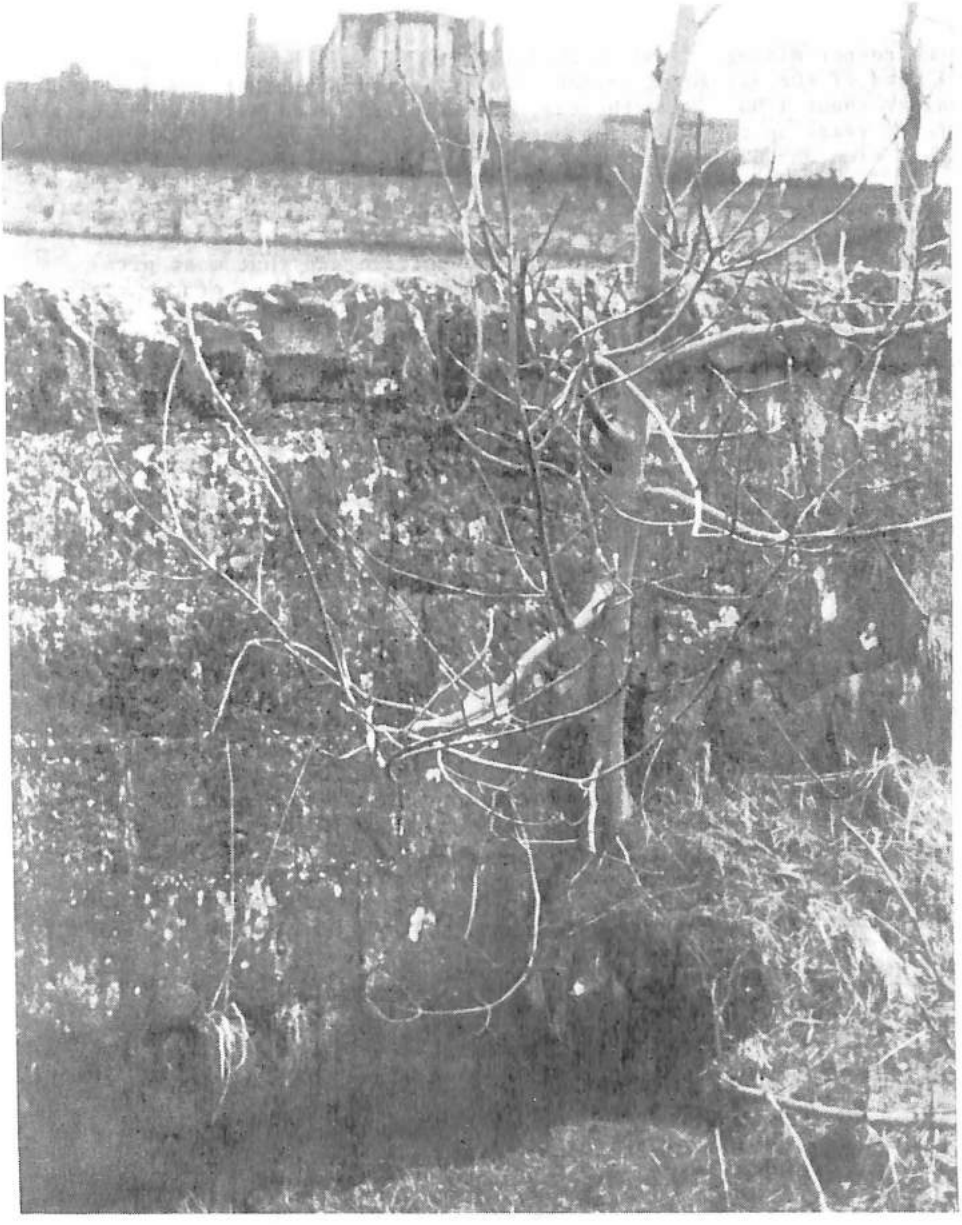

Plate 2 : Urquhart day-level outlet with Urquhart farm steading in the background. (Grid ref NT 081868).

the deeper mining of the late eighteenth century began to probe the limits of the day-level method, and it is unlikely that any were dug after about 1790. Nevertheless, the Balbirnie coal was worked for the forty years up to 1780 using only day-level drainage and produced in that time 365,000 tons of coal.

Goodwin referring to that part of the coalfield around Levenmouth, concludes that even with day-levels, few early pits could operate deeper than about 90 metres below the surface and that most pits averaged only 55 (6). Higher land in the Western part of the coalfield allowed deeper level-free mining and the Fordell level, for example, was about 75 metres below the pithead. The levels West of Dunfermline drained the pits to about 90 metres, but the Wallsend Pit, sunk in slightly lower ground, was level-free to only 74 metres.

In this respect the Kilmux level provides an interesting problem. Dron tells us that it drained the workings to a depth of just over 100 metres (7), while the New Statistical Account puts the length at 630 metres (8). Even if we adopt the unlikely assumption that the level was perfectly horizontal, these figures would require an average gradient on the surface of about 1 in 6 over the 630 metres. Such a steep gradient is not to be found in the Kilmux area. This suggests that Dron overestimated the depth, the NSA writer underestimated the length, or both. Consequently when Stephen locates this level at NO 370048 to NO 370041 (9), he implies a drainage depth of less than 47 metres - a far cry from Dron's 100. One possible solution to the problem is that if underground workings or natural drainage connected the day-level with pits situated on higher ground to the West (Wester Kilmux is about 190 metres above sea level), a level-free depth of about 100 metres might have been attained. The only alternative explanation would be that the water flowed uphill within the Kilmux day-level!

Nef points out that many early drainage systems included an adit as well as more than one type of pumping engine (10). In Fife there are

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(6) Goodwin, R. 'Some Physical and Social Factors in the Evolution of a Mining Landscape' Scot. Geog. Mag. 75 No 1, 1959

(7) Dron, R.W., 'The Coal-Fields of Scotland', 1902, p 306.

(8) New Statistical Account, Kennoway Parish, 1838, p 384

(9) Stephen, W., An Economic Geography of Fife, (Fife Educ Cmte, 1968 p 36).

(10) Nef, J.U., The Rise of the British Coal Industry, 1932, p 449

several cases which provide evidence of such an arrangement. After 1780, for instance, the Balbirnie level was able to lessen the engine lift by about 9 metres, while at Fordell in 1836, the level reduced a 90-metre lift to a mere 15. In 1831 the Venerable pit had a beam engine pumping from the Dunfermline Splint seam at 88 metres to the Fordell level at 45 and at Halbeath, steam engines 'on the Cornwall principle' raised water to the day-level at 41 metres (11).

The question of gradient is an important one, and was examined by Clerk, who was of the opinion that adits should be almost level, thus draining the seams the deepest possible point (5). His view is given weight by the comments of the Dalgety minister in 1836:-

> ".....The depth of the mining operations at the North boundary of the parish is 300 feet from the surface, and that of the main drainage level is only about 250 feet; consequently machinery is required to raise the water from the mines a distance of about 50 feet, instead of which, had the level been carried duly horizontal, the whole of the coal now drained by machinery would have been level free. And thus had due regard been paid at first to the drainage level, the expensive machinery now erected on the works would, in a great measure, have been unnecessary." (12)

Sinclair is also in favour of a gentle gradient for the additional reason that mines which were drained too dry were susceptible to dangerous gases. (2). Near Liege, day-levels of the mid eighteenth century were expected to have the very gentle gradient of 1 in 700 (10).

For any given length, a level with a gentle gradient will drain a greater depth of strata than will a steeply inclined level. Thus, provided that due regard is paid to the nature of the coal seams, the gradient may be used as a rough guide to the cost-effectiveness of a level. For this reason an attempt was made to calculate the gradients of some Fife levels. The known heights of outlets were used, together with the levels' known depth in the pits and their lengths. The results, however, were inconclusive. The gradients were found to range for 1 in 77 (Balbirnie) to 1 in 774 (Pitfirrane). Perhaps a more detailed survey can throw some light on the cost-effectiveness of the Fife levels as measured by their gradients.

(11) Chalmers, Peter, Historical and Statistical Account of Dunfermline, vol 2, 1859, p97.

(12) New Statistical Account, Dalgety Parish, 1836, p184.

What is clear, however, is that the construction of a day-level involved the outlay of a large amount of capital. It is difficult, though, to compare the cost of different drainage methods, especially in Fife where great geological variety makes each level unique. Generally, adits were dearer to construct but cheaper to run than a steam engine. On the other hand, maintenance charges could be heavy. At Bo'ness in West Lothian, for instance, it was noted that maintenance costs had "eaten up the whole free rent and commoditie of the .....heugh" (13). At Fordell, men were employed permanently on maintenance work since the channel was in constant danger of blockage. To minimise this threat, narrow passages were the rule. Clerk recommends 5½ feet high by 2 feet wide to be dug from the valley up to the coal (5). Insecure parts of the roof were supported with arches of stone or brick, or sometimes with wooden props.

One adit could, however, provide a worthwhile return by draining workings over a wide area. For example, a lengthy correspondence was carried on between Sir Robert Henderson of Fordell and his neighbours, Mr Wemyss and Lord Moray, with a view to extending the Fordell level so that it could drain the coal works of these latter gentlemen (14). The negotiations continued over the five years from 1768, but were unsuccessful. The high value placed on obtaining level-free workings is shown by the fact that a consideration of 1500 guineas was discussed, to be paid to Sir Robert in three instalments. Maintenance costs could not have been negligible, for the method of allocating these among the proprietors also features in the correspondence.

A feat of engineering such as the Fordell level represented a considerable capital investment, and Stephen has estimated the cost of driving that at Pitfirrane as £3,000 per mile (15). On this basis, our 43 km in Fife would represent some £81,000 invested in drainage levels alone by 1800.

This figure is of course a very conservative one, and there was at least one additional expense which would raise it substantially. Shafts had to be sunk to the day-level at regular intervals to provide ventilation and also so that men driving or maintaining the adit could gain easy access. Those on the West Dunfermline levels are shown on Map 2 and one of the shafts near Urquhart Bridge is illustrated in Plate 1.

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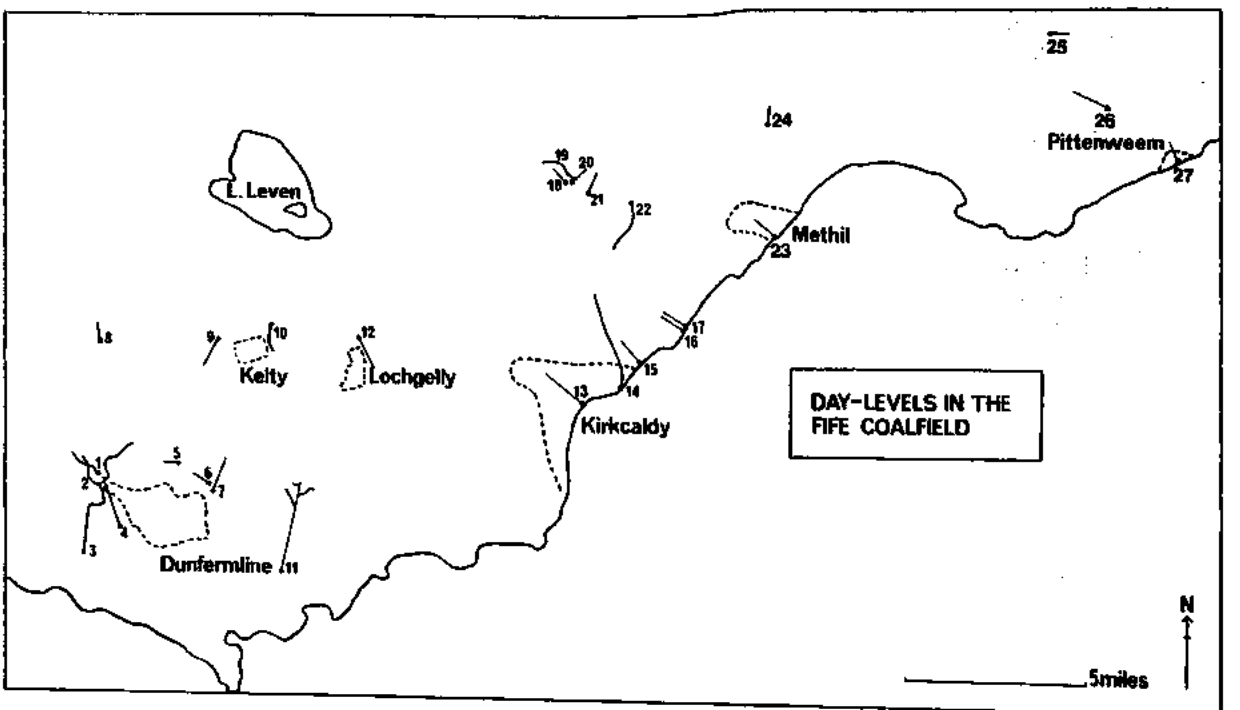
(13) Hamilton, Henry, An Economic History of Scotland in the Eighteenth Century, 1963, p 187.

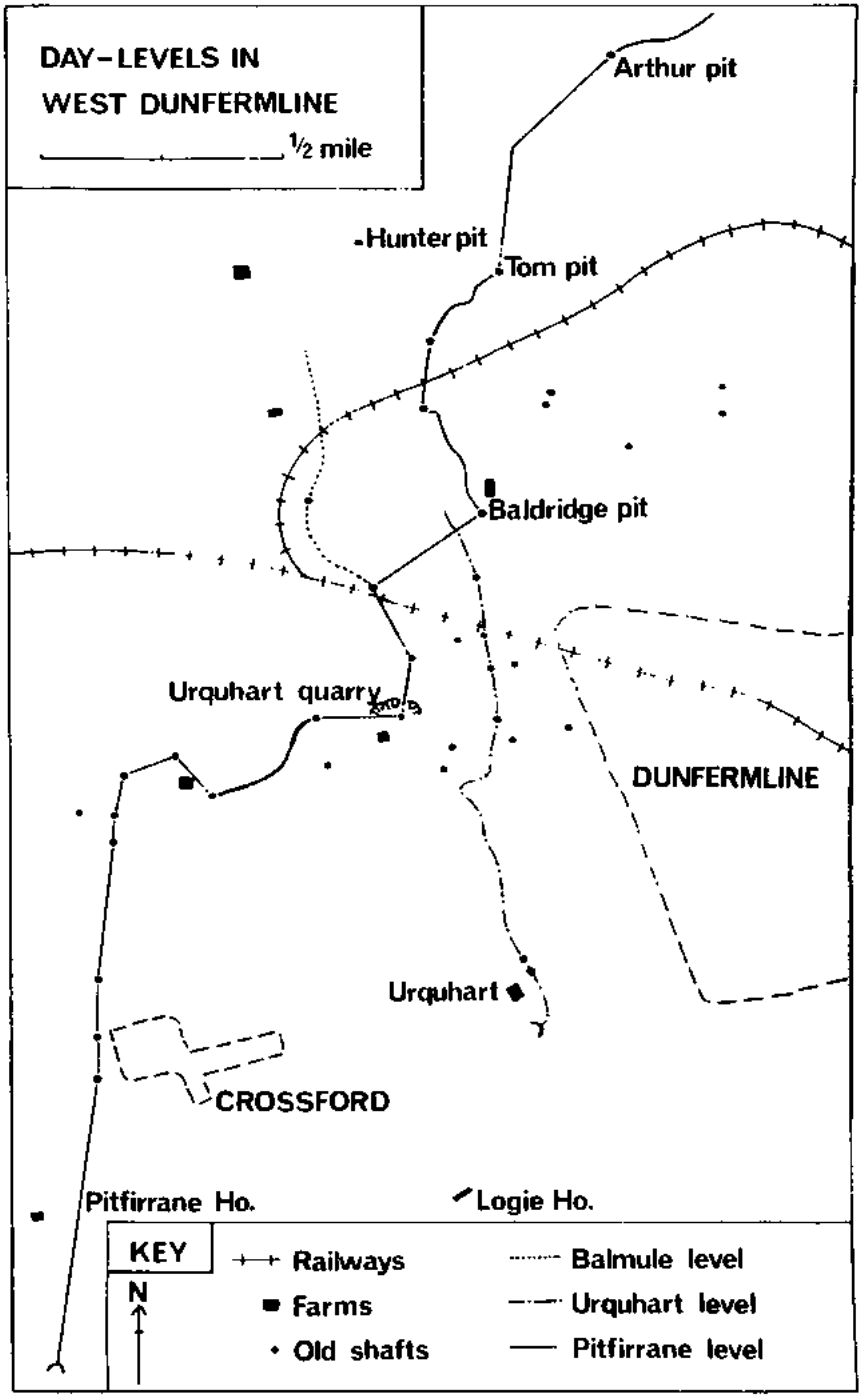
(14) Henderson of Fordell MSS (SRO GD172/833, 1768-73).

(15) Stephen, W, 'The Industrial Archaeology of Fife' (Unpub PhD thesis, Strathclyde, 1975, p 131).

Despite its temporary pre-eminence, the day-level was never a long-term alternative to 'lifting' the water from deep pits, and was perhaps most successful in an alliance with some sort of machinery where the level could effectively reduce the pumping height. Only in a few cases, such as the modest Urquhart outlet (Plate 2), does any surface feature remain to give some idea of the magnitude of these undertakings built to make mining easier in the rich seams of the Fife coalfield over 200 years ago.



Map 1 : The approximate locations of 27 Fife day-levels.



Map 2 : The day-levels in West Dunfermline. The Rosebank level has been omitted due to undertainty about its exact course, but it is thought to run in a South-easterly direction to an outlet just West of Baldridge Pit.

TABLE - DAY-LEVELS IN FIFE

Name	Total length in yards (metres)	date	6-figure reference of outlet
1. Rosebank	c. 1170 (1050)	before 1794	c. 078886
2. Balmule	1030 (930)	c. 1773	075884*
3. Pitfirrane	7620 (6860)	1773	068857
4. Urquhart	3080 (2770)	c. 1773	081868
5. Townhill	440 (400)	before 1781	not known
6. Whitefield	1760 (1580)	before 1794	not known
7. Halbeath	1760 (1580)	before 1794	123885
8. Lethans	not known	before 1838	067946
9. Kelty West	not known	not known	c. 125949
10. Kelty	over 1170 (1050)	not known	c. 148956
11. Fordell	9700 (8730)	c. 1750	148852
12. Lochgelly	1610 (1450)	not known	187950
13. Kirkcaldy	2200 (1980)	before 1818	285920
14. Dysart	4840 (4360)	1749	302928
15. Blair Burn	not known	c. 1670	c. 316942
16. Barncraig (a)	not known	before 1670	c. 330950
17. Barncraig (b)	not known	c. 1670	c. 330950
18. Cadham	810 (730)	c. 1740	278018
19. Balbirnie West	1540 (1340)	before 1794	282018*
20. Balbirnie East	730 (660)	before 1794	281018
21. Balbirnie	1030 (930)	1740	289014
22. Balgonie	over 2930 (2680)	before 1731	308008

Name	Total length in yards (metres)	date	6-figure reference of outlet
23. Methil	1220 (1100)	1672	not known
24. Kilmux	700 (630)	c. 1788	c. 370041
25. Rires	not known	c. 1740	not known
26. Belliston	c. 1760 (1580)	before 1790	519048
27. Pittenweem	800 (720)	before 1771	not known
TOTAL	47900 (43060)		
	= c. 27 mls (43 Km)		

* discharges into another level.
The numbers correspond to those shown on Map 1.

Saltcoats - a pre-railway port

by Eric J. Graham

The Parish of Stevenston has provided much for the researcher of early industrial processes in Northern Ayrshire, if not Scotland as a whole, providing insights into the early coal industry, entre preneurial studies, technological innovations as well as business and transport techniques. However this microcosm of early industrial initiative could have foundered in its infancy had it not been for the close proximity of its coal to the sea and the topographical blessing of a natural anchorage at Saltcoats.

Not only did Saltcoats provide easy land access to Glasgow and Paisley through the Garnock Valley but it also had advantages in that it protruded into relatively deep water - free from shoals and sand bars.

The harbour of Saltcoats was destined to see service as a storm haven and transit port for the Firth of Clyde and its islands but it was coal exportation that was to give Saltcoats its claim to be recognised as a major west coast port in its time. Coal lay in abundance in the immediate hinterland indeed under the town itself, and was a viable proposition for export to the lucrative Irish market. Saltcoats was an indispensable port, if not focal point of activity, of a very early integrated industrial scheme and must be considered with the same importance as is generally attributed to this area by Industrial historians.

That Saltcoats vessels engaged in foreign trade prior to 1700 is quite clear; T.C. Smout reports that between 1680 and 1700

> Irvine and Saltcoats boats were trading as far as Bordeaux and Stockholm (1)

with Kilmarnock merchants using the port from these earlier times. 1700 marked the completion of the first harbour raised principally by the persistence and capital outlay of Sir Robert Cunninghame of Auchenharvie (second of that name), as the key to his industrial complex of mining, salt boiling and overseas export. It would appear that the Port operated for foreign trade despite the legal technicalities then prevailing. Whether they were simply ignored or conveniently never challenged, is uncertain and it may be that

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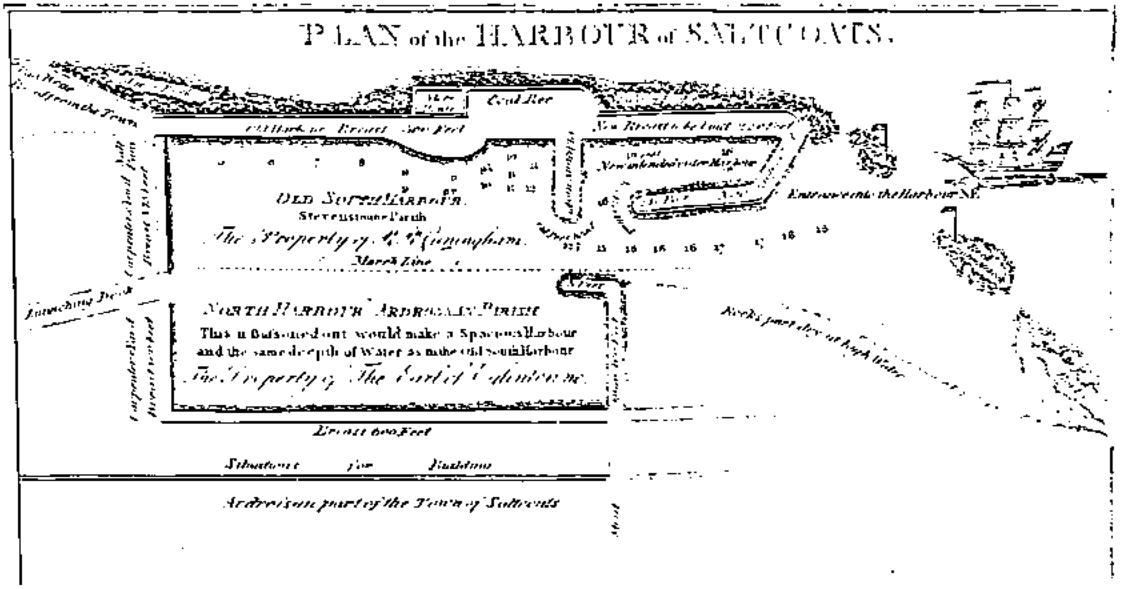
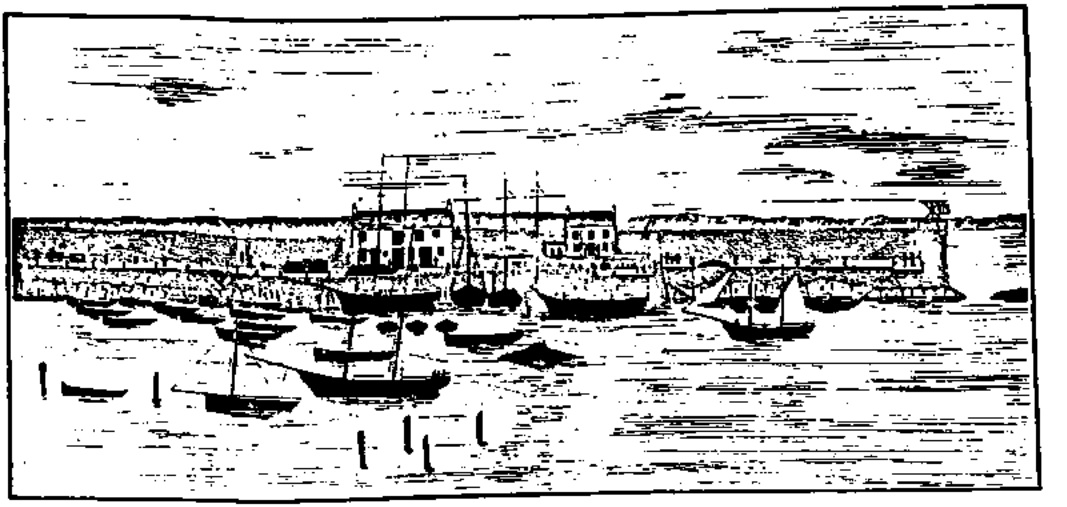
(1) T.C. Smout - The Overseas Trade of Ayrshire 1660-1707
A(yrshire) A(rchaeological) and N(atural)
H(istory) Collection Vol 6 Second Series Page 59.





Saltcoats Harbour, 1818, from an old drawing.

they adopted the rather dubious notion that since Saltcoats fell under the jurisdiction of the Customs area of Irvine (a Royal Burgh) they could share in its trade privileges. Trade from Saltcoats was apparently flowering and a contemporary reporter, John Spruell, acknowledges the port in 1705.

> as having forty or fifty small barks and ships trading with Ulster (2)

It has been estimated the Auchenharvie coalfield was the most productive in Ayrshire for overseas exportation with some 388½ chalders (c 800 tons) passing through the port 1680-1681 doubling to 702 chalders (c 1400 tons) for the 1690-1691 figure given. (3)

However this illegal activity was not allowed to continue and in 1709 the Covention of Royal Burghs moved to take "very strenuous steps"(4) against such illegal operators. For the Slatcoats trade the steps taken were in the very practical form of arresting, at sea, the vessels of Mr James Cunninghame (Sir Robert's son) engaged in the Irish coal trade. The matter was finally resolved with a deputation, headed by Cunninghame, securing from the Convention the right of

> communication of trade to the said inhabitants and parochners;(5)

the parishioners, notably included those of Ardrossan and the entire parish of Stevenston. In return they agreed to relieve the Royal Burghs by accepting to pay a share of the total amount of the cess tax. This devolved on the inhabitants of Saltcoats a fixed annual sum of

> eighteen pennies Scots of the taxed roll.(6)

In the year prior to this settlement a further possible hindrance was neutralised when Alexander, Earl of Eglinton, and effective head of a cartel that included a group of Saltcoat shipowners, gave his consent to the use of the port for the exportation of Auchenharvie coal. No doubt the legal basis for this move was his lord superiorship of the northern half of the anchorage which fell under the

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(2) Ibid - Page 63

(3) Ibid

(4) O. Kelly - Article - Ardrossan and Saltcoats Herald dated 3 Jan 1969 - as quoted from unstated source.

(5) Quater Centenary - Article "Notes on the History of the Burgh cess or stent tax" Page 19.

(6) Ibid

jurisdiction of his barony of Ardrossan. A possible reason for this generous act has been suggested that it was to allow Sir Robert Cunninghame to derive some return from his mining investments and so be in a position to repay the substantial debts which he had incurred with Eglinton.(6a) While accepting the reasoning it might also be considered that Eglinton could hardly deny Cunninghame without serious loss of business to his shipping allies who were reliant on a continuing flow of Auchenharvie coal, and so he retained the initiative by consenting to ...

> ye said Robert be (ing) preferred in loading all coals belonging to him (7)

This everpresent threat from the Earls of Eglinton with

> an eye to ye town of Saltcoats(8)

and the shippers combination overshadow the Cunninghame fortunes for the major part of the century. It was under such a threat of foreclosure that finds (in 1719) their coal and harbour installations passing totally outwith their control into the hands of just such a combination with Lord Eglinton directing the proceedings.

Outwith the problems of Cunninghame control it would appear that the port was in an excellent legal and geographical situation to benefit from the opportunities created for the West Coast of Scotland by the Act of Union of 1707 together with the ever increasing demand for coal as the United Kingdom moved towards the industrial age. If one accepts J.U. Nefs estimates of c800 and c1400 tons of coal produced from Auchenharvie for the years 1680-1 and 1690-1 respectively then the following figures for the years 1698, 1701 and 1707 (2,800 tons; 5,700 tons and 8,000 tons respectively (9)) present a good indication of a continuing expansion despite the financial straits of the Cunninghames at a time when the technical problems of pumping and working the pits were increasing. Eventually these problems were to be resolved under the more competent direction of John Reid and his son Robert Reid (adopting the surname Cunninghame in 1770). The port and its attendant industries reached their zenith in the last quarter of the century which was sustained only until the beginning of the nineteenth century when the irreversible decline set in.

(6a) C.A. Whatley - The Industrialisation Process of Ayrshire Ph.D. Thesis University of Strathclyde 1975 Page 119.

(7) N.A.M. Bundle 9 item 1.

(8) N.A.M. Bundle 1. Memorial as quoted by Whatley op.cit.

(9) J.U. Nefs - The Rise of the British Coal Industry

The Harbour - Construction, maintenance and organisation.

The construction of the original harbour was commenced in 1694 and was, by all accounts, a very exacting task with winter storms repeatedly demolishing the partially built structure so much that it was not completed until 1700.

> It consisted of a quay, all of stone, about 24 feet thick: large hewn stones on each side and an outer wall to shelter ships, of a considerable height. This building runs along a natural ridge of rocks (the Shott) in a straight line from N.E. to S.W. for 500 feet. At the S.W. end it turns at a right angle, and runs through the sea more than 160 feet forming a pier that runs nearly north. Within this rectangular space is the present harbour capable of containing 24 vessels, having a propoer clay bottom, dry at low tide and from 10-12 feet deep at spring tide. Admitting vessels of 200 tons, but, as only 2 large and 3 smaller vessels can be loaded at a time, the large one must be held down to the very end or be bound to the pier before they can complete their loading and must sail to, at Spring tide in order to make room for the loading of the rest. This delay is a very great inconvenience to the coal trade.(1)

Despite such limitations the harbour was to remain in this original form for over a century until storm damage prompted Reid Cunninghame to form a board of Trustees to extend and maintain the harbour (1796 Map 2). The cost of this original harbour was borne almost entirely by Sir Robert Cunninghame and in a memorial dated 1704(2) he claimed it had cost him a sum in excess of £1000; this was to be one of the principal factors contributing to his financial insolvency which was only forestalled by heavy borrowing, mainly from Lord Eglinton, and the selling of substantial parts of his estate; notably the lands of Ardeer to the Warners in 1707. It is to be noted that in 1709 he secured a fifty-seven year lease to work the coal of Ardeer, an arrangement perpetuated by Reid Cunninghame initially by an informal agreement with Patrick Warner in 1770, later confirmed by a formal pact dated 1774. This access to Ardeer coal and indirectly to Warner capital was to be the key to the success of the subsequent ventures of Reid Cunninghame all of which led to an increase of marine activity.

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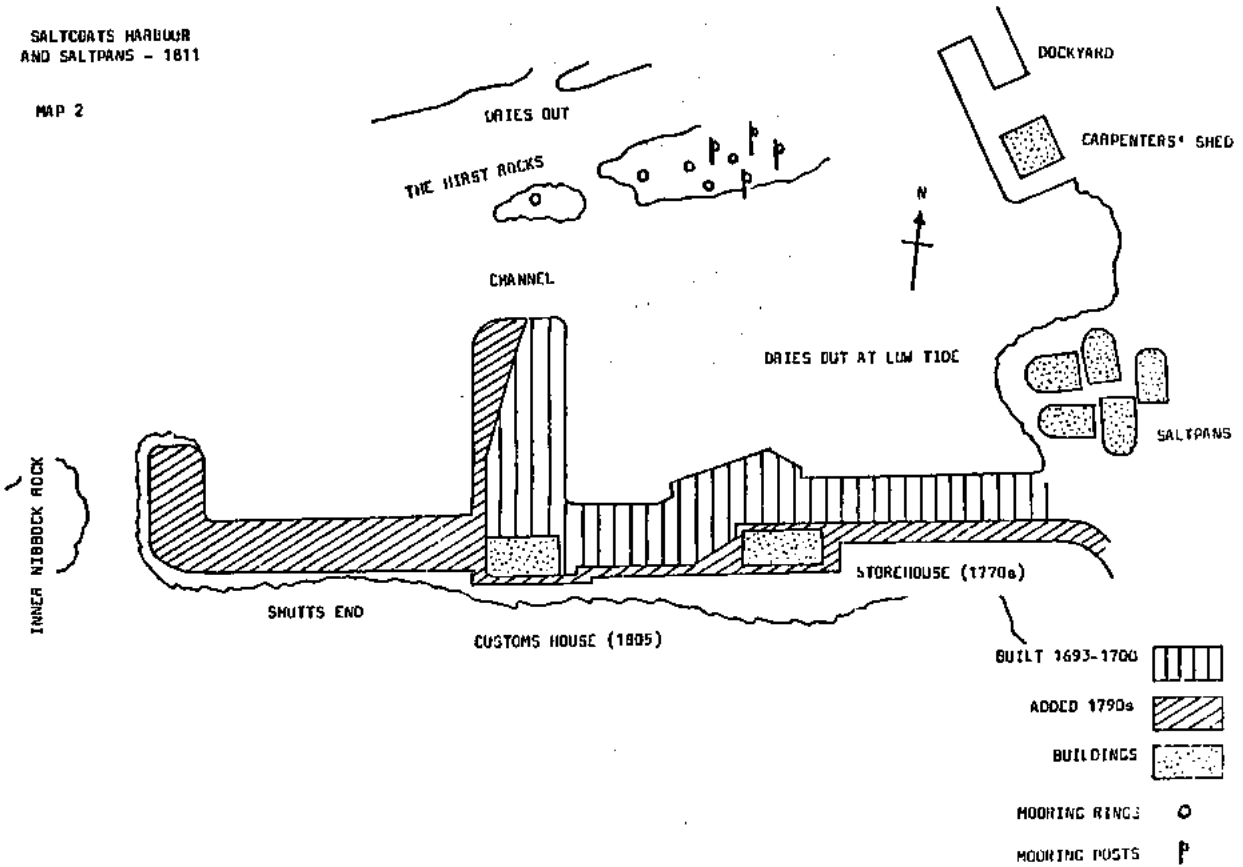
(1) O.S.A. Page 39

(2) N.A.M. Auchenharvie MSS. Memorial dated 1704.


SALTCOATS HARBOUR
AND SALTPANS - 1811
MAP 2
DRIES OUT
THE HIRST ROCKS
DOCKYARD
CARPENTERS' SHED
N
CHANNEL
DRIES OUT AT LOW TIDE
SALTPANS
INNER NIBBOCK ROCK
STOREHOUSE (1770s)
SHUTTS END
CUSTOMS HOUSE (1805)
BUILT 1693-1700
ADDED 1790s
BUILDINGS
MOORING RINGS
MOORING POSTS

However the legacy of Sir Robert's debts was to plague the Cunninghame estate for most of the century and seriously restricted the availability of capital for expanding such assets as the harbour in order to turn them into profitable concerns. After his death in 1715 a turbulent period followed in the business affairs of the Cunninghame family, particularly the 1719-20 period when they lost all control of their business assets to the local shippers headed by Provost McTaggart. By 1720 marine activity was at its lowest; the report of Peck and Potter, two English entrepreneurs, states that the port supported only twenty vessels all under seventy tons. (3) An up turn of affairs commenced with an infusion of English investment and the technological advances which provided steam engine pumps powerful enough to win the Auchenharvie seams. By 1725 the post served thirty-three vessels some over one hundred tons giving a total tonnage of 2,247 tons; (4) a situation that was to change little until the great shipbuilding era and expansion of trade later in the century.

The marriage of the eldest Cunnighame heiress, Anna, to John Reid the minister's son and self professed business-man in 1737, marks the return of the estate's affairs to the family and the first moves to secure the return of the family fortunes. With his calvanistic upbringing, discipline and respect for business he apparently possessed the drive and determination necessary to an entrepreneur. It is indeed fortunate that records of the management of the harbour under his direction have come to hand(5) whereby an insight may be gained into the working and management of this asset. The harbour accounts book covers the first three years of his control; from mid 1737 to early 1740 and is a complete record of the anchorage dues collected, balanced against the running costs and maintenance outlays of the harbour. Schedule 1 lists the individual ships that paid anchorage dues and it is to be expected that all the "native" vessels have appeared over such a lengthy expanse of time. To identify

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(3) C(arlisle) R(ecords) O(ffice) - Lowther MSS. 1725 as quoted by Whatley - op.cit. Page 127

(4) Ibid

(5) M(aritime) M(useum) S(altcoats) - Account book of Anchorage fees and harbour expenses 1738-40 - found in display case and would appear to have never been known to S.R.O. or researching historians although onetime local curator, Owen Kelly would appear to have been familiar with its existence with article dated 3 Jan 1969 Ardrossan and Saltcoats Herald.

such vessles and arrive at a workable result, vessels which make only one visit to the port in the whole of the three year spell are presumed to be "foreign" ships an assumption aided by the fact that their names often suggest different ports of origin e.g. the "Rotterdam Merchants". Working from this premise the tally for "native" vessels is a very convenient thirty-three, compatible with Potter and peck's figure for 1725 and further correlated by calculating their tonnage from a suspected anchorage due of ½d per ton burden (Schedule 1), which gives a total of c 2,288 tons. This figure, if acceptable, would imply an average vessel of some sixty eight tons burden which is to be expected from the general reports of Saltcoats shipping(6) and for coastal craft of this era. Saltcoats along with Irvine supported a shipbuilding and shipmasters community which, like all other similar ports, developed its own characteristic catalogue of ships names which gradually become familiar to the researcher.

As to the activity of the port, graph 1 taken from the anchorage dues, indicates the trade cycle that they followed. As to be expected, the summer months were the most active times with the frequency of arrivals dropping considerably during the winter months. Although it must be noted that a regular number of winter sailings are indicated presumably to exploit the high prices available in Dublin for the domestic coal which Saltcoats supplied. The deepest recession occurred with the March equinox, the most feared time for sailors, with its characteristic unsettled weather usually accompanied by gales, throughout which a vessel would be storm bound in harbour. Such gales and their attendant wild seas also played havoc with the harbour itself and entries under the heading;

"Accompts of money expended on the Harbour of Saltcoats" gives the debit side to the book keeping. One immediate point of interest is that throughout the period covered, August 1737 to May 1740, the harbour was not looked on as a profit making concern as all the dues amassed from anchorage duty are expended on the harbour upkeep. It would also appear that despite its private ownership, the harbour was viewed as a community concern with the townspeople providing the labour for large operations. In March 1739 for a fee of two pennies.

> John Allison, Belman warned the town folk to make themselves ready to bear sand. (7)

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(6) As stated in O.S.A. and N.S.A. The Customs Records for Irvine (S.R.O.) give coal cargoes average 20-30 Chalders (circa 40-60 tons) C.R.O. Potter and Peck's report 1725 and conclusions of schedule 1.

(7) M.M.S. - Account Book of expenses of Harbour - op. cit.

Evidently seventy odd colliers and bearers joined with a corporal and his platoon of ten soldiers to make up the work force. The payment for such service was invariably in the form of drink, ale or aquavitae, or beer money to be spent at their leisure with the colliers being given in this case six shillings to divide amongst themselves and the corporal two shillings for his men. It is notable that drink accounts form at least one fifth of the total expenditure recorded. Skilled men employed, e.g. masons, were paid on average ten pence per day with their helpers receiving eight pence and labourers seven pence to which was added the usual quota of drink to "hasten them" at their labours.(8)

The long remembered storm of the Saturday night of the 13th January 1739, which was to force the "Ann Galley" onto Troon sands,(9) also severely damaged the harbour structure. Sailors were recruited with an ample supply of drink to haul up

> great stones and rubbish washed from the quay into the harbour;

a part-time occupation at low tide. The violence of the storm was such as to cause a ship to break the mooring ring it had to be secured to, causing further expense in resetting the ring back into the rocks. Saltpans were damaged and new flagstones and stobs had to be replaced on the quay. However it would appear, that, apart from the repair of storm damage, work was undertaken for the harbours improvement during this period with large rocks on the harbour bed being blown with gunpowder and rolled away piecemeal.(10) This clearing of the harbour was continually promoted with men being hired to dredge the bed at low tide with shovels. Initially a small boat was simply filled with the debris which when refloated with the tide, was hauled out to sea for dumping but this "dirt boat" was replaced in the early nineteenth century by a flap-bottomed dredger.(11) Wanton dumping by crews into the harbour was penalised and by the Act of Parliament for improving the harbour (1821) the lifting of stones was encouraged for use as ships ballast with the due of 6d per ton, normally charged for ballast, being waived. (12) A policy

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(8) Ibid

(9) N.A.M. - Auchenharvie Mss. Bundle 22 item 3 (reverse side)

(10) M.M.S. - Account book of Harbour op.cit.

(11) P.C. Carragher - Saltcoats Old and New (Saltcoats 1909) Page 35.6.

(12) M.M.S. Act of Parliament 1821 - "for more effectively enlarging, deepening, improving and maintaining the Harbour of Saltcoats" - Paragraph 7.

meant to appeal to the interests of both parties.

Plans for improvement were frequently mooted prior to this date with the most dramatic change being effected by an Act of Parliament of 1796 and the energies and capital (some £1000 of his own) of Reid Cunninghame [13] and his newly created board of trustees (see Map 2) giving what remains the basic layout of the harbour as it stands today. Further additions were advocated and the Old Statistical Account includes a map showing the new quay as well as a projected quay (Map 3) which was to run from the "Shott End", at an angle, towards the old pier. This was intended to provide a sheltered wet dock for larger vessels thereby allowing an expansion of the shipping operations and turning round time previously denied by the physical limitations of the old harbour. It is worth noting that this proposal also advocated the clearance of the Hirst rocks thereby providing an additional anchorage, if somewhat shallow. Being the property of the Earl of Eglinton this would have entailed some sort of arrangement between rivals as to the control of the common entrance and facilities and it is not surprising that Lord Eglinton refused to entertain such a gargantaun task for such doubtful gains especially when one considers the potential offered by a deep water harbour at Ardrossan. This decision saw the initiative pass from Saltcoats to Ardrossan.

As to the facilities of Saltcoats harbour the drawing dated 1811 (item 2) illustrates the port at its zenith. The largest building was the storehouse erected in the 1770's at a cost of £381.5/4½ [14] by Reid Cunninghame and leased to William Kirkwood. [15] This building was used for storage of goods in transit and marine supplies to service the vessels. The smaller building was a customs house erected in 1805 and was even then still only an outpost of the Irvine customs

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(13) N.A.M. - Auchenharvie MSS - Note of Trustees of the Harbour 1806 - Bundle 45 Item 1.

(14) M.M.S. - Booklet (on display) - "A concise statement of the coal process betwixt the curators of Mr Warner of Ardeer and Robert R. Cunninghame of Auchenharvie 1801 - (Dalry 1801) - Page 15.

(15) N.A.M. - Auchenharvie Mss. - Records of Warehouse rents six notes dated from 1777 to 1790 - Bundle 6 item 2, bundle 7 item 9, bundle 12 item 8, bundle 14 item 9, bundle 15 item 3, bundle 19 item 3.

precinct, the ground floor being used as a bond warehouse. Prior to this construction custom supervision was conducted under more spartan conditions. A note dated 29 June 1765 (16) pleads for a watch house and the employment of porters for the manual task of weighing the salt blocks which was apparently done in a bucket. A watch house was erected at a cost of £10 4/4 but the other problems were seemingly ignored.(17) Customs men were employed to oversee both the shipping and the salt production with the earliest individual reference being of one James McDonald, retained as a salt officer since 1733. (18) Appointments were made by personal recommendation and record books of the Irvine Customs contain frequent reports as to the trustworthiness of the men. (19) Smuggling was endemic and many recruits were thought to be sympathetic to the offenders which increased the difficulties of what was already a dangerous occupation. In 1757 soldiers had to be called in to stop a mob of sailors harassing tidewaiters (the men who boarded the ship before she docked and who were the "police" of the service) trying to impound.

> fifty seven bottles of red and white wine (20)

smuggled into Saltcoats harbour. In December 1765 was recorded an application for a warrant of arrest after an assault on a tide-waiter involving the

> effusion of his blood (21)

It would appear to have been a violent age in general and even the early harbour accounts of 1730-40 include entries of expenses incurred in apprehending the culprits. One entry for

> the apprehending, imprisoning and prosecuting William Bolton, sailor for deforcing Mr John Reid, one of the managers, and wresting the hatchet from him when going to cut James Brown's cable whose ship was like to stop work (22)

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(16) S.R.O. - Customs Records of Irvine 1765 CE 71/1/2

(17) Ibid - entry dated 26/1/1765 CE 71/1/2

(18) Ibid - entry dated 14/1/1757 CE 71/1/1

(19) Ibid - CE 71/1/1 and 2 and 3 frequent periodic correspondences.

(20) Ibid - entry dated 4/11/1757 CE 71/1/1

(21) Ibid - entry dated 23/12/1765 CE 71/1/2

(22) M.M.S. - Account book of Harbour Op.cit - entry dated 17/7/1739

indicates that even the gentlemen entrepreneurs were called on to be men of action when need be. However general order was kept by the customs procedure which entailed the skipper keeping a "blew (blue) book" in which he listed his cargo that was subject to inspection. The blue book was eventually superceded by a "trusted declaration" from the skipper[23] in 1820. It may be that it was presumed that a falsehood can as easily be uttered as written especially in an age when illiteracy was widespread.

Other items of interest portrayed in the 1818 drawing are more concerned with the physical operation of bringing a vessel into the harbour. At the harbour entrance was recorded the iron age fire beacon suspended from a raised structure. Fueled by coal this beacon guided ships at sea to the port as well as indicating the danger of the Inner Nibbock rock which is just evident in the extreme right of the drawing. Navigational aids were few up until the late nineteenth century and were generally coal fires until the advent of oil lamps at the end of the eighteenth century. Out with harbour beacons the only notable lights were those on the Lady Isle and the very important and strategic beacon on the Little Cumbrae which marked the inner approaches of the Firth. Initially this early beacon was fired by Saltcoats coal conveyed direct from the Port[24] but was replaced by a lighthouse raised in 1791 by Robert Stevenson, grandfather of the author, Robert Louis Stevenson.

Referring back to the drawing, the roughly cut rock on which the harbour was built is evident and there are signs and remains of iron inserters which would have probably supported a heavy wooden buffer rail to fend the vessel's hull off from the rough cut rock face just off the old pier head, in its correct place, a large outcrop can be seen although the scene is depicted at high tide. This rock marks the extent of the Hirst rocks and the width of the channel which gave access into the inner anchorage. The artist has faithfully included the larger mooring ring which crowns this outcrop (item 3) and marks to the first of a line of rings which extend along the rock shelf (item 6). What is intriguing is that the artist had depicted vessels, one of a fair size, moored in the midst of the Hirst rocks which are a series of rock shelfs, boulders that dry out at low tide. The only possible explanation is that the

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(23) S.R.O. - Customs Records of Irvine 1820 Page 18 - CE 71/5/4

(24) Ibid - entry dated 10/9/1757 CE 71/1/1 - clearing of "the Molly of Port Glasgow" from Saltcoats "with 26 tons of coal for the use of the lighthouse lately erected there"

vessels are drying out on the very narrow flat areas between the rock shelves and must be an indication as to the congestion the harbour laboured under due to limitations set by the topographical nature of its situation. An alternative reason would be that the artist has exercised some licence to fill up the foreground of his scene; a possibility enhanced by the observation that the very noticable square grouping of the warping posts is usuallly indicated on survey maps as having been located on the eastern perimeter of the harbour basin itself. It must be stated, however, that all the other major structures have been faithfully represented in their true location.

As to the actual handling of the vessels negotiating this anchorage, tides dictated the proceedings. The vessels were normally loaded by the old pier as described in the Old Statistical Account (25) being warped in and out by the rings and posts provided. On departure the vessels gained clearance by warping up to an anchored cable, buoyed by a barrel, situated south-west of the Nibbock Rock (26) from which they had a sea -room to get under way by sail in westerlies. Larger vessels which approached the 200 tons or so limit would have used the new quay and floated out in the spring tides which would entail a very restricted use of this harbour; an increasing factor in the demise of the port as marine technology, economics and the availability of wet docks, like Ardrossan, pushed the size of vessels ever upwards.

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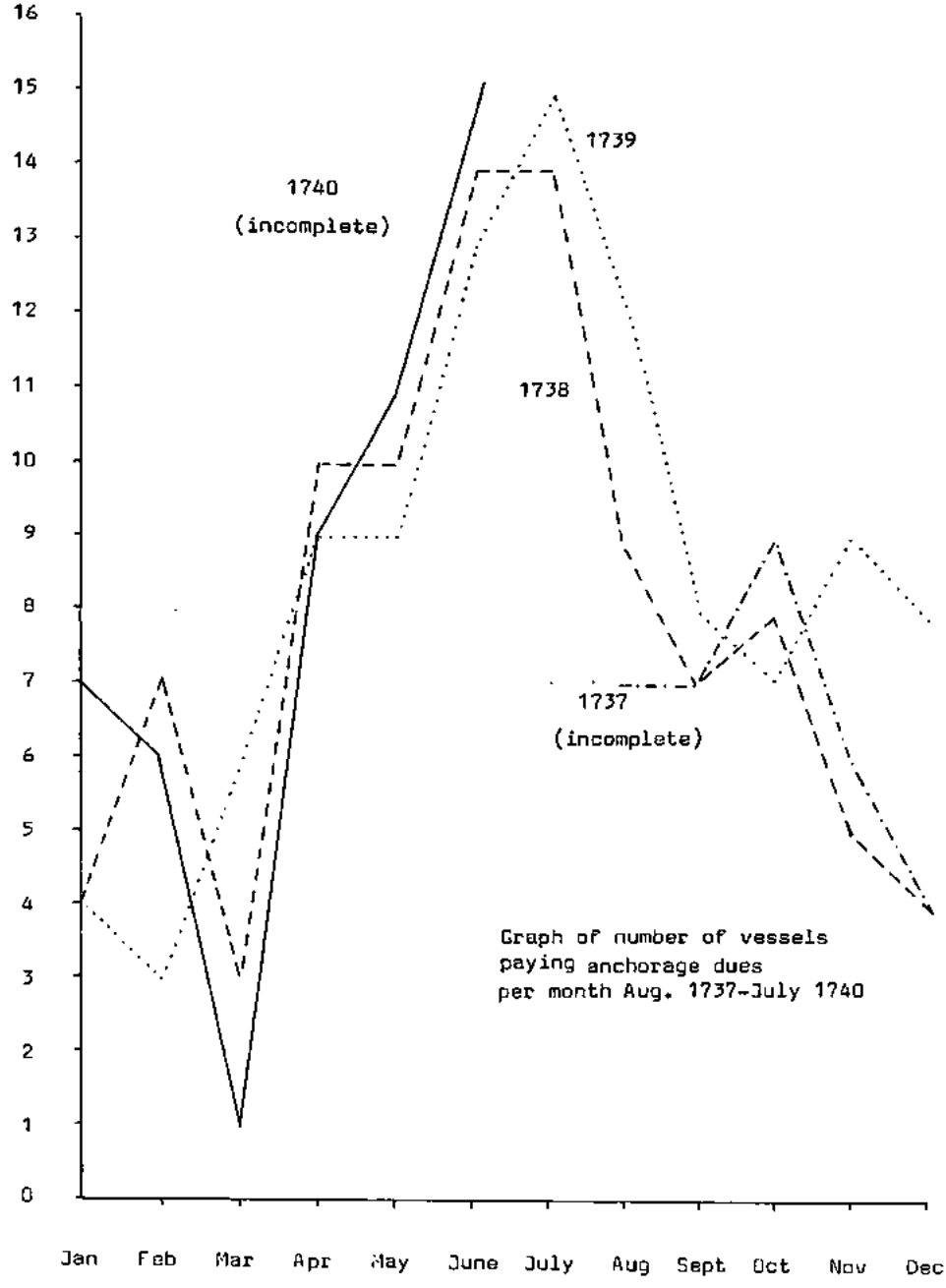
(25) Vide Supra - Page 9

(26) Carragher - Saltcoats old and new Page 7.



Graph of number of vessels paying anchorage dues per month Aug. 1737-July 1740

Schedule (1)

Shipping List from Anchorage Accounts (1737-40)

Ships name	Master(s)	Dues	Frequency	Suspected Burthen	Remarks
St. Andrew	Robert McLean	10/3	1	230	top scale to use Saltcoats
Prosperity	James Glasgow	10/3	1	230	
Susanna and Mary	Moses Charlott	8/-	1	192	
Rotterdam Merchants	Wm. Loyd	7/9	1	190	
Susanna	Wm. Galt	4/5	1	106	
Thistle	Robert Brown	4/3	1	101	
Grace and Mary	John Wilson	3/9	2	90	
William and Jean	John Dunlop	3/8	6	86	
George and Mary	Jas Cunninghame	3/8	2	86	
Sarah	John Wylie	3/7	2	86	
Mary and Jean	George Baillie(2) Robert Hamilton(1) James How(2)	3/6	5	84	
Success	Henry Scot	3/6	4	84	

Schedule (1) continued

Ships name	Master(s)	Dues	Frequency	Suspected Burthen	Remarks
Cunninghame	Robt Dickie (2) James Russell(5)	3/4	7	80	Quoted by Owen Kelly in Salt. and Ardrossan Herald Article 1969.
Francis & Elizabeth	Wm. Service	3/4	3	80	
Dilligence	Robt Tod(8) Jas Howie(1)	3/4	9	80	
Elizabeth	Jas Howie(5) Adam Bottom(2)	3/3	8	78	Skipper Howie's change of command is sequential
Rachell	Francis Brown	3/2	1	74	
Eglinton	Wm. Dunlop	3/-	1	72	Possibly rebuilt at Girvan and register at Ayr 1834.
Alexander	Archibald Steele	2/11	4	70	Possibly the Brig Alexander
Neptune	John Paterson	2/11	1	70	Probably from Irvine
Concord	John Crawford	2/11	5	70	
Grizzele	John Montgomery	2/10	11	68	

Schedule (1) continued

Ships name	Master(s)	ques	Frequency	Suspected Burthen	Remarks
Pelican	Jas. Millar	2/9	6	66	
William and John	Sam. Murchland(1) Robt. Auld.	2/9	6	66	
Mary	Jas Cunninghame	2/8	6	64	Two of this name
Sarah	Jas Stevenson	2/8	3	64	Two of this name
Margaret and Jean	Jas Brown	2/7	10	62	Mentioned in Harbour Acc/s 1739 - page 4 item-11 same master then.
Anna	John Ritchie	2/7	12	62	
Welcome	John Ritchie	2/7	99	62	Probably of Irvine
Catharin	Alex. Calderwood	2/6	1	60	
Unity	Jas Crawford(5) Wm. Thomson (1)	2/6	6	60	
Brotherhood	John Erskine	2/6	6	60	
Betty	Allan Stevenson	2/5	13	58	Two of this name.

Schedule (1) continued

Ships name	Master(s)	Dues	Frequency	Suspected Burthen	Remarks
Providence	David Lorimer	2/5	8	58	
Robert and Mary	Robert Lusk	2/5	7	58	
Charlot	Sam Howie	2/4	1	56	
Bonn Adventure	John Wylie(5) Hugh Wylie(3)	2/3	8	54	John took over Sarah Dec. 1739
Eagle	Hugh Stenson	2/3	7	54	Quoted by Owen Kelly. April 1757 Payment made to Seamen on board
Esther	Findlay Breddon	2/3	12	54	
Friendship	Robt. Barbour	2/1	9	50	
Betty	Jas. Woodsyde	2/-	1	48	Second vessel of this name, possibly master also of Mary. Charged with silk smuggling Sept. 1759
Robert of Cumra	Alex Howie	2/-	4	48	
Mayflower	Robt. White	2/-	6	48	Far too small to be the Mayflower Brig of 1790's

Schedule (1) continued

Ships name	Master(s)	Dues	Frequency	Suspected Burthen	Remarks
Philip	John Jrizzles(5) John Mitchell(4) Robt McKirdy(2)	2/-	9	48	
Recovery	Francis Brown	2/-	4	48	Possibly onetime Master of Rachell
Anna	Robt. Crawford	1/8	1	40	Possibly onetime Master of Unity
Mary	Jas. Woodsyde	1/3	1	30	Possibly onetime Master of Betty
Averages				68 average	
(excluding single visit vessels-presumed "foreign")	Saltcoats tonnage around			2288 tons burthen	

Schedule (1) continued

Recurring family Names

Cunninghame - James

Wylie - John and Hugh

Howie - James, Samuel and Alexander

Stevenson - James, Hugh and Allan

Dunlop - William and John

Crawford - John, Robert and James

Brown - Robert, Francis and James

NOTES ON RECORD OFFICES AND SURVEYS

Management and Shipbuilding on the Clyde, 1919-1977

A Research Project

Regular readers of the Journal will know that in recent years a large scale co-operative archive saving effort, involving the Scottish Record Office, the Western Survey, the Universities of Glasgow and Strathclyde, and the then Glasgow City Archives, secured the records of the constituent firms of Upper Clyde Shipbuilders following upon the liquidation of that concern. When added to earlier deposits of shipbuilding papers, this created a very large and most comprehensive collection of business records relating to an important industry. The collection is probably unrivalled in scope and extent in Britain. Earlier reports and lists published in this Journal have indicated the nature of the material. After several years of planning, and with the aid of a two-year research grant from the Social Science Research Council, a major study of the Clydeside industry has been undertaken by Mr. A. Slaven of the Department of Economic History in the University of Glasgow.

The central objective of this study is to explain the apparent decline of the industry on Clydeside, and nationally in Britain; to highlight regional consequences of this decline, and to make it possible to assess current problems and proposals in this industry in a more informed way, and with an improved perspective. Essentially, the project asks, 'What did management do'?, when confronted by the problems besetting the shipbuilding industry since the first world war. The emphasis is on problem and response as seen through the eyes of management, and hence stresses the development and nature of policy at three levels. First, in the Firm; ie an attempt to outline and evaluate the development and implementation of management strategy in response to changing conditions in the industry. Second, at Industry level; ie a focus on industry sponsored policy and action designed to exercise some control over its own situation. Third, State policy; ie, public policy and the industry as it develops over time and how this effects policy at the other two levels and vice versa.

The investigation of these themes will be initially conducted on a basis of company case studies, and will chronologically take account of three periods of very broadly distinctive market conditions; 1919-39; 1939-60; 1960-77. In addition to local business papers the project is based on records of the industry 'organisations and associations', government papers, and papers of related industries and services. It is hoped that the major findings of the project will be in publishable form in about two years time.

A Slaven University of Glasgow

Scottish Industrial Archaeology Survey

The Ancient Monuments Section of the Scottish Development Department (formerly of the Department of the Environment) has given the Department of History, University of Strathclyde a grant to employ a Survey Officer at Research Assistant level to extend the work in Industrial Archaeology already being carried out in the department. The aim is to produce systematic lists of important classes of industrial monument which will then be scrutinised by a panel to assess their worth for listing, scheduling or for taking into guardianship. The Survey Officer is also making measured field sketches, which will be used to aid assessment of merit and provide an important addition to our stock of information on upstanding remains.

The Survey Officer, appointed from the beginning of 1978 is Graham Douglas, an Australian with wide experience in surveying industrial monuments in North-east England. Over the summer he has been engaged in surveying brick and tile works and windmill stumps, and he has also drawn a few small cast-iron bridges. He intends to start a survey of industrial remains in Clackmannanshire in the near future. He would welcome information about disused brick and tile kilns in any part of the country. His address is : Department of History, University of Strathclyde, Glasgow G1.

SUMMARY LISTS OF RECENT ARCHIVES, SURVEYS AND DEPOSITS

1. NATIONAL REGISTER OF ARCHIVES (SCOTLAND)

Surveys completed since publication of Scottish Industrial History Vol. 1 No.3. Full details are given in the survey list the NRA(S) number of which is indicated. All communications regarding these should be addressed to :-

The Secretary,
National Register of Archives (Scotland),
P.O. Box 36,
H.M. General Register House,
Edinburgh EH1 3YY.

EXTRACTIVE INDUSTRY : PRECIOUS METALS

1504 HARRY V. MARTIN ESQ., ABERDEEN
Letter commenting on South African goldrush, 1882

EXTRACTIVE INDUSTRY : STONE

582 HUNTER OF HUNTERSTON
(addit.) Legal and other papers relating to stone from Hunterston quarry supplied to Glasgow and Ayr Railway 1840

MANUFACTURING : CHEMICALS

1510 ARTHUR YOUNG, MCLELLAND, MOORES AND CO., CHARTERED ACCOUNTANTS, PERTH.
John Todd and Co., Ink manufacturers
Letter book 1848-1865
Sederunt books 1865-1899

MANUFACTURING : ENGINEERING

1522 MRS. M. KIRKLAND, EDINBURGH
Kinross Power Loom Company Ltd.
Papers (mainly vouchers) relating to liquidation 1877-1883.

532 A. & W. SMITH AND CO. LTD., SUGAR FACTORY AND REFINERY ENGINEERS,
(addit.) GLASGOW
Drawing books 1868-1886
Catalogues of drawing 1897-1929
Drawing office order books 1874-1945
Drawing office notes 1908-1911
Store books 1893-1926
Job books 1932-1946
Dimension books 1880-1885
Letter, specification and memorandum book 189-1912
Order sheets book 1886-1930

MANUFACTURING : SHIPBUILDING

1530 GOURLAY BROTHERS AND CO. (DUNDEE) LTD., SHIPBUILDERS, DUNDEE
List of ships built 1858-1906
Ship drawings c. 1859-1910

MANUFACTURING : TEXTILES

1503 MR. AND MRS. T.A. JARDINE, LEVEN
Net manufactory records, including order books, cotton testing books, cash books and ledgers 19th century

1510 ARTHUR YOUNG, McLELLAND, MOORES AND CO. LTD., CHARTERED ACCOUNTANTS, PERTH
James Burt Marshall Ltd., bleaches, Luncarty
Financial records 1893-1916
Minutes 1906-1917
Share and dividend register 1906-1913

James Morison, weaving agent, Perth
Letter book 1859-1861

1460 C. DAVIDSON AND SONS LTD., PAPERMAKERS, ABERDEEN
Bonlinikon Felt Co. Ltd.
Minutes of annual general meetings 1891-1905

MANUFACTURING : PAPER

1460 C.DAVIDSON AND SONS LTD., PAPERMAKERS, ABERDEEN
Directors' minutes 1871-1934
Minutes of annual general meetings 1879-1908
Balance sheets and accounts 1875-1942
Ledgers 1852-1865

INDUSTRIAL EDUCATION

1512 CONVENERY OF THE INCORPORATED TAPES OF EDINBURGH
Trades Maiden Hospital
Record book of pupils c.1870-1890

INDUSTRIAL RELATIONS : SOCIETIES

1512 CONVENERY OF THE INCORPORATED TRADES OF EDINBURGH
Minutes 1729-1941
Accounts 1834-1957
Writs relating to skinners of Edinburgh 1147-1701

Trades Maiden Hospital
Minutes 1739-1953
Accounts 1799-1955
Record book of pupils c.1870-1890
Miscellaneous records 19th cnetury

Incoporation of Weavers
Minute book 1654-1764

1435 GLEGG AND THOMSON LTD., WHOLESALE IRONMONGERS AND STEEL STOCKHOLDERS, ABERDEEN
North of Scotland Iron-Merchants Stockholders' Association
Minute book 1918-1965

CONSTRUCTION

1300 ABERDEEN UNIVERSITY LIBRARY
Plans, sketches and specifications for building work on Aberdeenshire estates c.1776-1931

1507 MRS. MAITLAND, INVERURIE
East Balhalgardy farm
Specification and letter concerning houses erected 1903-1904

Wester Balhalgardy farm
Architectural plans of alterations to steading 1904

1520 LT. CON. G.I. MALCOLM OF POLTALLOCH
Correspondence and papers relating to improvement on estate, repair and construction of buildings, construction of canal and proposal to erect village at Crinan harbour, 1797-1827

1529 MULL AND IONA FOLKLORE MUSEUM
Plan and copy plan of Tobermory village and proposed village 1787-1790

852 HUNTER OF HUNTERSTON
(addit.) Paper relating to alterations to Hunterston House 1882
Architectural plans of home and castle of Hunterston before and after alterations 1912-1916.

1100 DUKE OF ROXBURGHE, FLOORS CASTLE
(addit.) Estimates for building byres at Caverton 1756-1757
Note of agreement for building south stable at palace of Holyrood house 1554
Letter concerning building a bridge over the Teviot near Kelso 1792
Account for building Spronstoun Manse 1697
Papers concerning alterations to the roof of Floors Castle, including estimates 1743-1747
Account for building Kelso council house 1695-1696
Estimates for repairs of Kelso church and Manse, with plans 1770-1771
Note of money for building church of Urquhart 1663

1370 KINTYRE ANTIQUARIAN SOCIETY
(addit.) Plans of Campbeltown 1769 and ante

1453 DUNDEE CITY DISTRICT ARCHIVES AND RECORD CENTRE, MISCELLANEOUS
(addit.) ACCESSIONS

Building estimates and accounts for Dudhope House 1850-1853
Plans of Dudhope and Somerville Place 1830-1880
Household accounts and receipts of James Davie, painter and decorator, Dundee, and his son 1925-1961
Typescript reminiscences of son of David Reid, contractor, concerning reconstruction of Belmont Castle for Sir Henry Campbell-Bannerman 1885

Papers of Sir Garnet Wilson, Lord Provost of Dundee: Miscellaneous papers concerning juvenile delinquency. Proposed Tay Road Bridge, University education in Dundee and burgh extension 1944-1970

SERVICE INDUSTRY

1447 RICHARD IRVIN AND SONS LTD., TRAWLER OWNERS AND FISH SALESMEN, ABERDEEN
Ships Stores and Repairing Co. Ltd.
Minutes of annual general meetings 1920-1943

1510 ARTHUR YOUNG, McLELLAND, MOORES AND CO. LTD., CHARTERED ACCOUNTANTS PERTH
M. Jackson, photographer, Perth:
Ledger 1889-1896

1529 MULL AND IONA FOLKLORE MUSEUM
Duncan MacKinnon, boot and shoemaker, Tobermory
Account book 1884-1910

825 HUNTER OF HUNTERSTON
(addit.) Papers relating of Mayor Charles Cochran-Patrick
Aircraft Operations Co. Ltd.
Miscellaneous reports, correspondence and other papers relating to aerial surveys of Rangoon, the Orinoco Delta, the Irrawaddy River, Burma and Rhodesia 1921-1928
Cash book 1927-1932

Estate and legal papers
Accounts and receipts from tradesmen 1825-1866

NEWSPAPERS

1433 PAISLEY AND RENFREWSHIRE GAZETTE GROUP
James Paton Ltd.
Rate cards and advertisements 1893-1894
Register of employees 1912-1943
Typescript history and commemorative booklets 1892-1950

J. & J. Cook Ltd.
Rate card 1968

Paton and Cook Ltd.
Miscellaneous printed pamphlets and trade catalogues c.1967
Copies of various newspapers (including in complete series of Paisley Advertiser 1832-1943) 1819-1961
Miscellaneous photographs of staff machinery etc. c.1918-1960

COMMERCE : ACCOUNTANCY

1510 ARTHUR YOUNG, MCLELLAND MOORES AND CO. LTD., CHARTERED ACCOUNTANTS PERTH
Sederunt books and letter books of testamentary trusts and sequestration of merchants, inn-keepers farmers and indutrial concerns, mainly in Parthshire, including inventories and valuations of stock 1819-1922

J. & R. Morison, accountant, Perth:
Letter books 1828-1878
Privately printed history of family, and firm of J. & P. Coates 1887

1522 MRS. M. KIRKLAND, EDINBURGH
Miscellaneous legal papers relating to clients of Thomas Steedman, accountant (Kinross?) 1853-1897

COMMERCE : BANKING

1522 MRS. M. KIRKLAND, EDINBURGH
Miscellaneous legal papers relating to clients of the Clydesdale Bank, Kinross 1853-1897
Company prospectuses and reports etc 1857-1897
Financial and legal papers of Hugh Laird, agent of Edinburgh and Glasgow Bank at Kinross 1844-1859.

COMMERCE : INVESTMENT TRUST

1501 SCOTTISH EASTERN INVESTMENT TRUST LTD.
Records n.d.

SOLICITORS

1521 SKENE, EDWARDS AND GARSON, W.S., EDINBURGH
Miscellaneous plans n.d.

1522 MRS. M. KIRKLAND, EDINBURGH
Miscellaneous legal papers relating to clients of John W.S. Wilson, solicitor, and Gillespie and Paterson, W.S., (Kinross?) 1853-1897

1055 GRAHAM AND FORBES, SOLICITORS, DUNDEE
(addit.) Writs and legal correspondence 16th-19th centuries.

1100 DUKE OF ROXBURGHE, FLOORS CASTLE
Innes of Innes papers
Correspondence, writers including William Forbes, writer in Edinburgh, on legal topics 1724-1756.

TRADE : ARCTIC

1458 WILLIAM L. McKINLAY ESQ., GLASGOW
Diary of John Hadley, Arctic trader who joined Vilhjalmur Stefansson's Company to exploit Baffin Island Reindeer, 1921-1923

TRADE MERCHANTS AND WHOLESALERS

1435 GLEGG AND THOMSON LTD., WHOLESALE IRONMONGERS AND STEEL STOCKHOLDERS, ABERDEEN
Directors' minutes 1909-1947
Wages books 1940-1944
Balance sheets 1927-1945
Letter book 1898-1943
Stock inventories 1909
Sales chart 1924-1945
Bad debt book 1859-1956
Routine correspondence and discharged bills 1905-1928

1481 LAWSON, TURNBULL AND CO. LTD., PLUMBERS' MERCHANTS AND ELECTRICAL FACTORS, ABERDEEN
Directors' minute books 1903-1944
Balance sheet and annual accounts 1890-1899
Stock account and profit and loss accounts 1941-1942
Wages book 1903-1907
Sales abstract 1908-1910
Illustrated sales catalogue 1916
Photographs of premises, personnel etc c.1900 - present

1502 DUNDEE AND TAYSIDE CHAMBER OF COMMERCE
Forfarshire Chamber of Commerce
Minutes 1819-1823

'Baltic Coffee House' Chamber of Commerce
Minutes 1844-1853
Cash book 1835-1849

Dundee Chamber of Commerce
Minutes 1865-1960
Directors' minutes 1960-1968
Committee minutes 1922-1960
Arbitration Committee Minutes 1918-1950
Copy letter book 1871-1878
Register of members 1855-1920
List of films and members 1935
Subscriptions analysis books 1958-1965
Royal Exchange Reading Room introduction book 1912-1959
Notices and ciculars issued 1929-1945
New cuttings 1922-1932
Cash and cash analysis books 1925-1972
Day book 1967-1971
Trade directories 1963-1969

Examination register for commercial certificates 1920-1937
Miscellaneous printed items 1855-1919
Dundee Produce Association
Minute book 1941-1960

272 A.M. STEWART OF SHAMBELLIE Esq., DUMFRIES
(addit.) Lawson and Co. Ltd., tobacco and general merchants, Dumfries
Contract of copartnery 1748
Balance accounts 1744-1767
Tobacco sales 1748-1749
Miscellaneous accounts 1757-1762

427 J.T. MACKENZIE Esq., MOTHERWELL
(addit.) Letters from Donald, William and Alexander MacDonald to their family in North Uist, describing their voyages to America and inter alia, their various employments there as army clerk, retail grocer, book-keeper and mercantile agent 1838-1878

TRANSPORT : CANALS

1520 LT. COL. G.I. MALCOLM OF POLTALLOCH
Estimates for extending intended Crinan Canal to Loch Awe and proposals to carry it on to Perth 1793.
Correspondence and papers relating to improvements on estate, repair and construction of buildings
Construction of land and proposals to erect village at Crinan Harbour 1797-1827

TRANSPORT : RAILWAYS

1300 ABERDEEN UNIVERSITY LIBRARY
Correspondence, plans and other papers relating to establishment of railways in north-east Aberdeenshire, c. 1858-1937

1518 MRS. NORAH PHILLIPS, EDINBURGH
Photographs of the Forth Bridge c.1888

852 HUNTER OF HUNTERSTON
(addit.) Legal and other papers relating to stone from Hunterston Quarry supplied to Glasgow and Ayr Railway 1840

TRANSPORT: ROAD

1468 SIR RONALD ORR-EWING Bt., PORT OF MENTEITH
Port of Menteith Road Trustees
Minutes 1860-1864

1520 LT. COL. G.I. MALCOLM, OF POLTALLOCH
Account for road repairs, Duntrune estate 1795

825 HUNTER OF HUNTERSTON
(addit.) Vouchers for building of'Tole Road' c.1794-c.1810
Papers concerning roads in parish of West Kilbride 1830-1870

1100 DUKE OF ROXBURGH, FLOORS CASTLE
(addit.) Papers relating to road from Lauder to the English boundary 1766-1784
Letter concerning building a bridge over the Teviot near Kelso 1792
Report on Earl of Roxburghe's petition to move ferry at Kelson Townhead from the Tweed to the Teviot 1784

1453 DUNDEE DISTRICT ARCHIVES AND RECORDS CENTRE
(addit.) Miscellaneous papers of Sir Garnet Wilson, Former Lord Provost of Dundee, concerning, inter alia, the proposed Tay Road Bridge c.1944-1960

TRANSPORT : SHIPPING

1490 W. LIND Esq., KILBARCHAN
Thomas MacLean and Co. (Glasgow) Ltd., shipbrokers
Accounting records 1878-1925
Charter party books 1875-1973
Ship particulars books and ship general arrangement drawings c.1872-1948

1518 MRS. NORAH PHILLIPS, EDINBURGH
Photograph album, mainly relating to trip round north of Scotland in S.S. Claymore 1890

1529 MULL AND IONA FOLKLORE MUSUEM
Log book of vessels City of Sparta and Martin Scott on voyage to Calcutta and to San Francisco 1875-1888

1271 F.A. DONALDSON Esq., KILBARCHAN
(addit.) Donaldson Brothers Ltd.
Minutes 1913-1939
Ledgers and journals 1867-1935
Register of members 1913-1928
Outfitting costs for various records and voyages c.1860-c.1890
Donaldson Brothers and Black Ltd.
Minutes 1938-1966
Freight cash book n.d.
Ledger 1945-1965

Anchan Donaldson Line Ltd.
Minutes 1916-1924

Donaldson Atlantic Line Ltd.
Minutes 1951-1955

Donaldson South American Line Ltd.
Minutes 1919-1931
Papers relating to finance and construction of refrigerated ships 1919-1930

Donaldson Line Ltd.
Minutes 1913-1968
Minute of shareholders' meeting 1938-1967
Instructions for captains and officers 1950
Staff particulars and salaries 1905-1967

Stock account book of W.F. Donaldson 1867-1879
Anchor line staff magazines c.1918-c.1925
Ship specifications 1867-1870
Files on shipbuilding and insurance 1900-1967

FISHING

1447 RICHARD IRVIN AND SONS LTD., TRAWLER OWNERS AND FISH SALESMEN, ABERDEEN
Directors' minutes 1907-1931
Minute book of Aberdeen board 1920-1956
Balance sheets 1908-1924
Photographs and paintings of ships and staff c.1890-present

1494 TAY SALMON FISHERIES CO. LTD., PERTH
Minutes 1899-current
Records of net and rod catches 1899-current
Record of rod lets 1900-26
Absracts of leases c.1900-current
Scrapbook on Perth Water Supply Scheme c.1924-1925
Patents and other papers relating to improvements in fishing reels developed by P.D. Malloch n.d.

1520 LT. COL. G.I.MALCOLM OF POLTALLOCH
Correspondence and reports concerning British Fisheries Society, including note of Dutch prisoners desirous of settling as fishermen 1801

1100 DUKE OF ROXBURGHE, FLOORS CLASTE
(addit.) Writs of lands in sherifdoms of Roxburgh and East Lothian, 15th-18th century, including Ancrum, Sprouston, Caverton, Broxfield and Morebattle, and salmon fishings on the Tweed
Writs and legal papers concerning the Spey fishings, particularly the Dunfermline fishings on Spey, with some accounts for selling salmon 16th-18th century.
Papers relating to difficulties of Sir Harry Innes with his fishers on the Lossie 1741
Account of money laid out by the Laird of Innes on the fishings 1660-1675

AGRICULTURE : ESTATES

1300 ABERDEEN UNIVERSITY LIBRARY
Gordon of Buthlaw and Caithness MSS:
Papers relating to Georgia Estate. Jamaica, 18th century to 1895
including : Accounts of sugar sales 1820-1838
Accounts of slaves 1822-1832
Estate and factors' accounts 1831-1894
Letter book 1893-1895

Papers relating to Aberdeenshire estates c.1776-1939, including:
Rental of Cairness, Lonmay, Newtyle, Buthlaw, St. Combs and
Invermonth 1833-1860
Rent rolls 1862-1921
Factors and agents' accounts 1855-1938
Miscellaneous estate accounts and financial papers 1800-1939
Annual estate accounts 1921-1931
Estate note books containing details of tenants, tenure, cultivation
and general estate work 1859-1936
Estate game books 1879-1937

Estate, personal and household letter books of Charles T. Gordon
and his son 1902-1937

1468 SIR RONALD ORR-EWING Bt., PORT OF MENTEITH
Walter Ewing and Brucehall Estate
Personal estate and household accounts 1790-1801
Estate correspondence 1820-1862
Tacks, rentals, roup rolls and other estate papers 1747-1863
Rentals and other papers relating to annexed estate of Arnprior
1758-1798
Miscellaneous estate papers concerning Ardross,
property of Erskine family 1805-1924
Estate and farm plans of Cardross, Carden, Lochend and Guidy Ward
1761-19th century.

1500 THE NATIONAL TRUST FOR SCOTLAND
Irvine of Drum Mss :
Titles of Drum and other lands, 1323-17th cnetury
Legal, estate and miscelleneous papers and correspondence 16th-19th
century, including : Account of condition of estate of Drum 1718
Rentals of Cromar and Kinmuick 1719-1758

1503 MR. AND MRS. T.A. JARDINE, LEVEN
Writs relating to of Durham of Largo,
Selcraig and Pearson 1669-1820
Writs of lands in Largo 1669-1848
Largo Feuans accounts and notebook
1833-1892

1508 MRS. E.A. ORRAM, EDINBURGH
Oliver of Lochside Mss.
Titles, Roxburghshire 1690-1822
Estate papers 1690-19th century
Household accounts 1838-1868
Legal papers and correspondence 1811-1864

1520 LT. COL. G.I. MALCOLM OF POLTALLOCH
Survey of Duntrune estates c.1785
Correspondence and papers relating to improvements on estate 1797-1827
Correspondence and other papers relating to Argyll estate, Jamaica, including : News of slave revolt and its suppression 1760
Schedule and lists of slaves 1797 and 1804
Shipments of sugar 1830-1832
Reports on education of slaves on estates 1837

1522 MRS. M. KIRKLAND, EDINBURGH
Titles of Drumtochermouth and Blairhill, Fife, processed by the Lyndesays of Downhill 1523-1630

1528 K.M. MACALPINE, Esq., PERTH
Estate plans from parishes of Fortevist, Dunbarney, Kin Scone and Tibbermore c.1740-1850

1531 RICHARD EMERSON, Esq., EDINBURGH
Plans of lands of Almondele 1848

852 HUNTER OF HUNTERSTON
(addit.) Estate and legal papers, 1374-1900, including :
Photocopy charter by Robert II to William Hunter of lands of Arnell 1374
Volume of discharge of teinds 1681-1698
Deeds of entail of estate and papers relating to disputed ownership of islands of Millport Bay 1791-1880
Personal, estate and household accounts of the Hunters of Hunterston 1795-1857
Accounts and receipts from tradesmen 1825-1866
Papers concerning the estate and executry of Eleanora Hunter, 1833-1834, of John Crawford of Broadfield 1838-1855, and of Mrs Hunter Weston 1915-1917
Papers concerning Temple lands of Hunterston 1901

Miscellaneous papers :
Rental of lands belonging to the barony of Glasgow c.1660
Plans of parts of Hunterston estate 1935-1939

1100 DUKE OF ROXBURGHE, FLOORS CASTLE
(addit.) Writs of lands in sheriffdoms of Roxburgh and East Lothian 15th-18th century, including Ancoum, Sproustown, Cavertown, Broxfield and Morebattle, and salmon fishing in the Tweed.

Estate papers relating to lands in sheriffdoms of Roxburgh and East Lothian 16th-19th century. Papers in action over teinds of Dunbar 17th-18th cnetury. Rentals of Dryburgh 1633, Roxburgh estate 1819-1820, the hundreds of Dorchester, Thame, Pyrton and others in Oxfordshire 1625
Account of the condition of the Roxburghe estate in 1650 and 1653
Valuations of shire of Roxburgh 1742 and 1782

Papers concerning town of Kelso 16th-18th century :
Writs, legal and estate papers 17th-18th century
Ballenden of Auchnoull papers 15th-17th century:
Writs of property in and around Edinburgh 15th-17th century, Linlithgow 15th-17th century, Fife 15th-17th century and Orkney 16th century.
Rental of few of Birsay n.d.

Innes of Innes papers :
Writs of barony of Innes and other lands in sheriffdoms of Aberdeen, Banff, Elgin, Inverness, Nairn and Ross 16th-18th century
Estate papers 16th-18th century
Rentals of Enzie and Fochabers 1654, Penicuik 1653, Garmouth 1661, Innes and Garmouth 1722, custom fowl and weddens in barony of Innes 1703, and half davoch of Cullichmoir 1645
Valuation of shire of Elgin 1653
Roll of the Marquess of Huntly's vassals and wadsetters in Strathbogie 1672
Rent roll of Sir James Innes' English estate of Huish 1775-1795
Survey of valuation of the estate of Sir James Innes Ker in parish of Langton. E. Riding of Yorkshire by John Snowball 1807.

1453 DUNDEE CITY ARCHIVES AND RECORD CENTRE
(addit.) Printed parliamentary acts and court petitions relating to Dudhope estate, Dundee 1820-1880

AGRICULTURE : FARMING

1300 ABERDEEN UNIVERSITY LIBRARY
Farm cash books 1928-1937

1468 SIR RONALD ORR-EWING Bt., PORT OF MENTEITH
Farm plans of Cardross, Carden, Lochend Guidy War 1761-19th century

1493 CHARLES COCKBURN Esq., ABERDEEN
Farm account book, Rhynie 1861-1919

1503 MR. & MRS. T.A. JARDINE, LEVEN
Records of Balmakin and Freuchie Mill Farms 20th century

1507 MRS. MAITLAND, INVERURIE
Papers relating to East Balhalgardy farm, Inverurie
Account book 1876-1884
Valuation of farms and household stock 1875
Specification and letter concerning houses erected 1903-1904

Tack of wester Balhalgardy 1863
Architectural plans of alteration to steading 1904

1514 MRS. M. WRATTEN, ABERDEEN
Rental of Kildrummy 1798

1522 Mrs. A. KIRKLAND, EDINBURGH
Inventories of stock and other papers relating to farm bankruptcies in Kinross area 1848-1890

1100 DUKE OF ROXBURGHE, FLOORS CASTLE
(addit.) Report on Sproustounhill farm 1770

AGRICULTURAL : SOCIETIES

1468 SIR RONALD ORR-EWING BT., PORT OF MENTEITH
Arnprior District Ploughing Society
Minutes 1858-1865

1522 MRS. M. KIRKLAND, EDINBURGH
Kinross-shire Agricultural Society
Minutes, accounts and other papers 1818-1839

2 STRATHCLYDE REGIONAL ARCHIVES

The following business, industrial and commercial records have been received since the appearance of Vol. 1, No. 3. Applications for access should be made to the Principal Archivist, Strathclyde Regional Archives, P.O. Box 27, City Chambers, Glasgow, or, if calling, at 30 John Street (basement).

MANUFACTURING : ENGINEERING

Messrs. Glenfield & kennedy, Kilmarnock, crane builders. (uncatalogued),

SOLICITORS

Robert Armstrong Mitchell, Solicitor, Glasgow.
Letterbooks & ledgers, 1835-43.

Messrs. Dixon, Erskine & Co., solicitors, Greenock.
Uncatalogued.

Messrs. Smith Macdonald & Crawford, solicitors,
Greenock.
Uncatalogued.

Messrs. A.J. & A. Graham, solicitors, Glasgow.
Maps & plans of Castlemilk, Larkhall, etc.

TRANSPORT : SHIPPING

Messrs. Donaldson, shipowners, Glasgow
Minutes etc. of Donaldson Line and Donaldson Anchor Line (addit.)
1913-1963, accounts, 1867-1935

TRANSPORT : AUTOMOBILES

Renfrewshire County Council : motor taxation registers, 1903-1949.

COMMERCE

Messrs. Kerr, Anderson, Stevenson & Co., stockbrokers, Glasgow.
Records, 1846-1967.

Greenock Chamber of Commerce
Minutes & other records, 1773-1971. (transferred to Inverclyde
District Libraries).

FAMILY & ESTATE

Nether Pollock Ltd., Glasgow.
Additional estate records, c.1920-1970.

Ballingall Family, Glasgow.
inc. business records of Paisley wrights and Glasgow ship
insurance brokers, 1706-1935.

3. SCOTTISH FILM ARCHIVE 16 Woodside Terrace, Glasgow

Within the varied collection of archive footage are films relating to the following firms :

Clyde Tube Forgings, Hillington. - manufacture
Shaw Macinnes, Firhill Iron Works, 1966 - centenary celebrations
Urquhart, Lindsay, Robertson Orchar Ltd., Blackness Foundry, Dundee -
manufacture of jute machinery
Mavor & Coulson - coal mining techniques and machinery, c.1950

National Cash Register Co., Dundee - manufacture, c.1953
The Rootes Group - production line of Hillman Imp, c.1963
A.A. Shipman, Engineering
G.K.N. Ltd - steel production
Hugh Smith Machine Tools
Terson's Construction Co. - topping out ceremony
Black & Decker Ltd.
Cementation Co., Ltd. - subsidence, 1945
Melville, Dundas & Whitson - construction of King George V Bridge, Glasgow, 1924-1927
Wm Beardmore's - steel and engineering processes
Colvilles Ltd and associated companies - steel production, 1938 and 1963
Giddings & Lewis-Fraser Ltd, Arbroath - jute manufacture
J.R.L. Halley, Wallace Craigie Works, Arbroath - jute production, 1949
Glenhar Fashions, Hillington - Construction of factory and manufacture of clothing, 1938-1947
A. & G. Paterson Ltd, St Rollox Sawmills - timber trade
Gourock Ropework Co., Port Glasgow - ropemaking, 1956
Wm Lindsay & Son, Canonmills Cooperage - cask making, 1936
Douglas Fraser, Westburn Foundry, Arbroath - jute machinery
SCWS Shieldhall Factories - manufacture and production of shoes, brushes furniture, food and chemicals, 1932
Brunton's Wire Rope Works - production, 1930
Aurora Lamps, Old Kilpatrick - production, 1931
Jas. Gilchrist Ltd, Bakers, Ayr - manufacturing processes, 1931

Also in the collection is material on industrial exhibitions, ship-building, coal mining, component manufacture, glass blowing, forestry, fishing, early attempts at industrial rehabilitation and several retrospective documentaries on the industrial faces of Scotland, particularly in the decade of the Empire Exhibition in 1938.

Anyone with enquiries about footage should contact :

Janet McBain,
Archivist,
Scottish Film Council,
16 Woodside Terrace,
Glasgow

041 332 9988 ext 245

SOCIETY NOTES

Business Archives Council (Scotland)

Secretary's Report : The main function of this office has been to ingather funds to underwrite the Council's share of the support cost of our Surveyor; this will continue for some time. Contributions following our appeal amounted to £2650 from all sources : since our annual target is £2000 for each of three years, there is still quite a way to go.

A pleasing and most welcome increase in corporate membership has caused a change to be made in the manner in which subscription monies are ingathered. To satisfy the administrative requirements of businesses, local authority and university libraries, a proper system of invoicing has been prepared which will overcome any difficulties experienced heretofore. Whilst on this subject, our Honorary Treasurer has been most active in presuading our more recalcitrant members to pay outstanding subscriptions and these are all now up-to-date.

Such action usually brings about a crop of resignations, in our case the result was not different - a drop of rather more than 10% with the majority intimating their resignation, without offering to pay outstanding sums owed to the Council. Since interest in the work of the Council continues to grow, I am pleased to be able to report that the fall in membership has been more than made up by the new members - mostly corporate members, resulting in an overall increase in subscription income.

Correspondence with overseas countries slowly increases, mostly with universities and similar institutions in Canada and the U.S.A. Many of the problems raised are interesting and assistance is given where possible. The time taken to provide useful answers presents the greatest problem in this regard, it is rather jealously guarded when one is also engaged in business, where the path between profit and loss can be surprisingly narrow these days.

In conclusion I would ask members to continue to bring the work of the Council to the notice of as many individuals and organisations as possible. With the appointment of David Cross as Surveyor, the work of the Council is now pursued vigorously on every working day of the year and not spasmodically as before. Since his mandate covers the whole of Scotland, surveys of business and commercial records which are considered to be'at risk' can now be undertaken with some urgency.

As indicated before, such an activity is not possible without a substantial inflow of cash. New members represent a continuing supply of this valuable resource and donations are obviously most welcome.

W. Lind

Scotttish Society for the Preservation of Historical Machinery

The SSPHM has continued to acquire new items for preservation, (the story of one such is appended to these notes) though the rate of acquisition has levelled off, owing in part to lack of storage space and to uncertainty about future industrial museum developments. There have been two visits so far this year, to Ravenscraig Steelworks, and to the Forth Railway Bridge, both of which were well attended. The main activity of the Society in recent months has been the restoration to a presentable state of the turbine control gear and drive, including lineshafting, in the Pollock estate power station. Despite poor attendance at working parties over the summer, good progress has been made. A plinth has been prepared for the installation of a National oil engine from the University of Strathclyde, and suitable dynamos are being sought. The sawmill at Pollock has been restored by Job Creation labour, and has been opened to the public on a number of occasions. A winter lecture programme is being arranged : details and speakers will be circulated, to SSPHM members, but SSIA and BAC(S) members will also be welcome.

Phone (041-339-8855) or write to Dr Peter Swinbank, Department of the History of Science, University of Glasgow, for information.

SSPHM

The Extraction of the Allan Lampstart Paraffin Engine

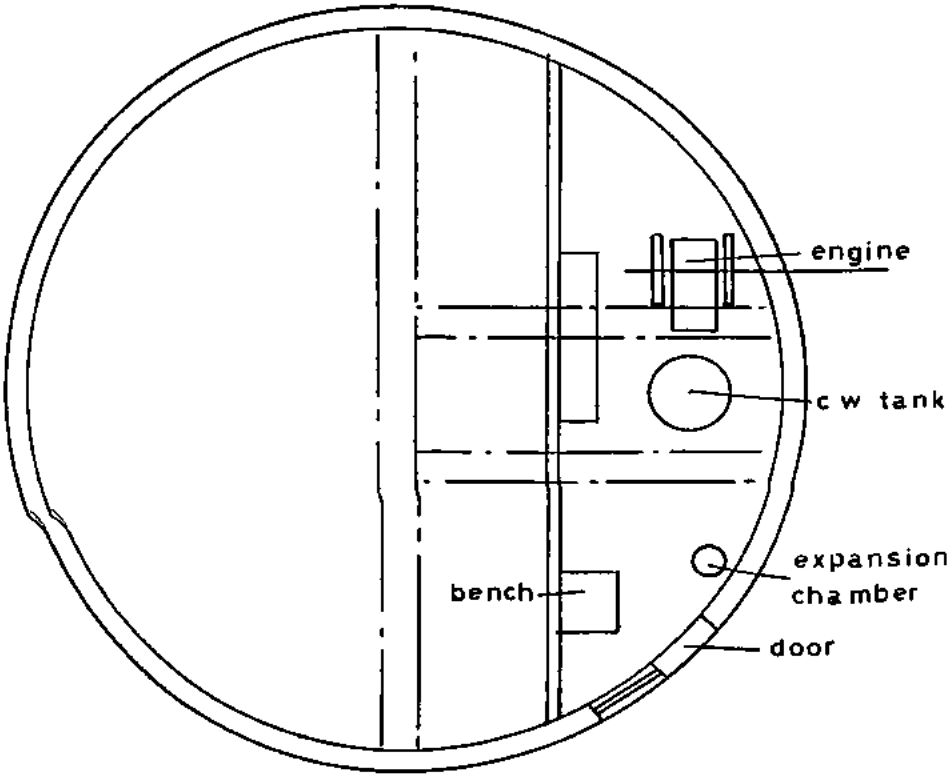
Burmieston Farm (No 009326)

Friday the 7th of October 1977 was a very wet day, so wet in fact that in Glasgow the passengers on a bus had to be rescued by rowing boat. No wonder then that those members who had volunteered to make up a working party to dismantle and remove from its house a lampstart engine at Burmieston near Perth were a little apprehensive as to what they were in for. However the weather on the Saturday turned out to be ideal for the job being dry and neither too warm nor too cold.

The engine was located in a one-time horse-gin house which had been partitioned as shown in the sketch and which was in very good condition. It still has in position the original structure which had supported the bearings and shafting of the horse gin. The engine was mounted on a concrete plinth on the floor of the house and a coupling on the crankshaft connected to a shaft passing through the wall of the house into the adjacent threshing room, which is now in use as a hay store. The engine is complete and includes the cooling water tank and exhaust expansion chamber which were still piped up, although some of the piping was corroded through. Unfortunately the starting lamp is missing but it should be possible to replace this.

Dismantling started with removal of the cooling water tank and disconnection of the cooling exhaust piping which ran in a trough in the floor. The bolts were removed from the coupling and it was then possible to turn the engine over by hand very easily which is not bad considering that it had not been used for something like 15 years. The auxilliaries comprising hot bulb, carburrettor, camshaft and crank guard were then removed mainly to protect them from possible damage during subsequent operations. We decided not to remove the piston from the cylinder as we felt that this would help to prevent corrosion of the bore not to mention damage to the piston rings. The cylinder was drawn out of the frame, using a chain block slung from one of the original support beams, and let down on to the floor and then manhandled across the floor, up the steps and out the door accompanied by many mutterings of "it must be lunchtime by now etc etc." A short break for tea was allowed after which a start was made on removing the flywheels and crankshaft.

In order to bring the crankshaft under the lifting tackle the bedplate was moved off the plinth and on to wooden blocks. This involved the removal of some fairly flimsy cement grout and much heaving on crowbars, pulling on ropes and general puffing and



ENGINE HOUSE AT BURMIESTON

panting. Real old fashioned engineering this, none of your fork lift trucks for us. It was then possible to lift the flywheels and crankshaft complete using the chain block and to swing them clear of the bedplate onto the floor and roll them clear. The bedplate was removed from the engine house using wood blocks, jacks, a tackle attached to a convenient electricity pole, crowbars, muscle, sweat, the occasional foot and very little strong language. Half way through this operation it was found absolutely essential to stop for lunch as the working party was in danger of slowing down to a dead stop through hunger.

Thus fortified the final task was to remove the crankshaft and flywheels from the engine house. This was obviously going to be the most difficult operation as the flywheels could not be removed from the shaft due to the coupling being rusted on to one end and the other end being somewhat mangled by the starting handle which engages in the keyway. The flywheels are bigger in diameter than the width of the door which is hung on a rather flimsy wooden framing built into the original opening in the gin house wall and is located in the sharply angled corner between the wall and the partition, a small but solidly fixed work bench ensured that there was minimal room for manoeuvering, again it was a case of jacking up, inserting wooden blocks, rolling backwards and forwards and working first at one end and them the other until the whole thing was up to the level of the second step and then getting one wheel through at an angle dragging forward and then the other wheel through. All the while during this operation one had to be careful not to strain the crankpin or webs by jacking or heaving too enthusiastically.

Once all the parts were outside the engine house the brasses, nameplates and other purloinable parts were removed for safety. The cast iron expansion chamber on the exhaust system which was half buried in a pit in the floor proved to be very easy to remove which was pleasing, to say the least.

The whole operation took approximately seven hours including stops for meals etc and while it involved some hard work was not too exhausting and was both interesting and most enjoyable.

G. Beveridge.

NEWS FROM OTHER ORGANISATIONS

The Scottish Records Association This important new body now has more than 300 members. Its first conference was held in Edinburgh in November 1977, and a series of local meetings has been held, including presentation of archive films by Janet MacBain of the Scottish Film Archive. A one-day conference on Victorian Glasgow held in association with the Glasgow Unviersity Extra-Mural Department on 19 May proved so popular that two additional sessions have had to be arranged. The Association's first Datasheet was issued in May, and lists archival repositories of the National Institutions, Local Authorities and Universities of Scotland. A second, carrying details of other repositories should follow later this year.

Prestongrange Mining Museum A mortising machine made by Alexander Mathieson & Sons Ltd at the Saracen Tool Works, East Campbell Street, Glasgow was recently offered for preservation when a joiner and undertakers business in Edinburgh was being wound up. Similar machines have been preserved by the Royal Scottish Museum and the SSPHM. This latest machine has been obtained for Prestongrange Mining Museum. It is very likely that such a machine would have been used in a colliery joiners' shop.

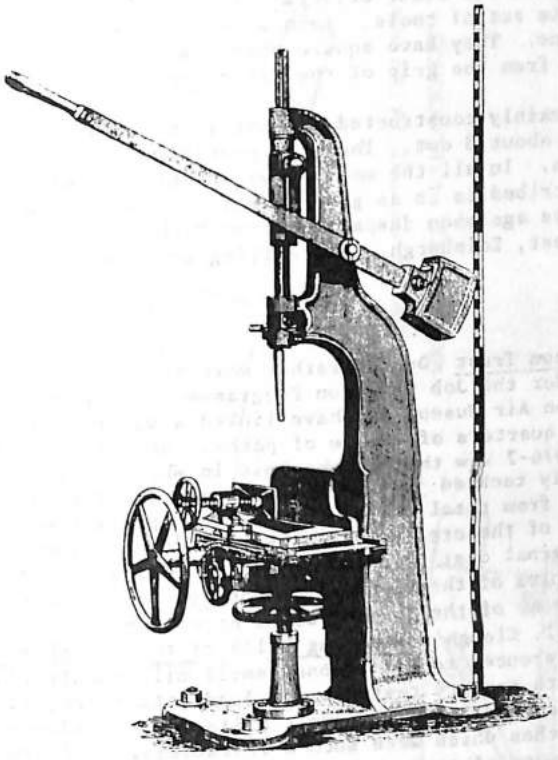
The illustration of the machine is reproduced with the kind permission of the RSM from their copy of Mathieson's 1899 "Illustrated Price List".

A common use for mortising machines is to cut the mortices in the vertical rails of doors. The rail is clamped to the table using the upper left of the two smaller handwheels. A chisel of suitable width is inserted in the taper chuck with its cutting edge at right angles to the length of the rail. The table is raised or lowered to the height dictated by the thickness of the rail using the handwheel under the table. The workpiece is moved back and forward to centralise the chisel by use of the lower right small handwheel.

The cutting operation is then started by pulling the chisel down by means of the lever which gives a 6:1 advantage. A series of cuts is made along the length of the mortice using the large handwheel to advance the table and workpiece via a pinion and rack. The chisel is then turned through 180°, by a lever in the chuck guide, so that the other end of the mortice can be cut.

In order to prevent splitting of the wood the rail is turned over and the mortice cut through from the back. If necessary a blaze driver is substituted for the chisel to clear any wood chips remaining in the mortice.

It is essentially a one operation machine but it quickly produces an accurate result without much skill being needed by the operator. The alternative hand chisel and mallet method is laborious and requires



No. 51.

HAND MORTISING MACHINE.

"Crescent" Pattern.

Stroke, 5½ Inches, and will Mortise a Rail 11 Inches Deep, 8 Inches Thick.

With One C.S. Chisel, each ¼, $\frac{5}{32}$, ⅜, $\frac{7}{32}$, ½, $\frac{9}{32}$, ⅝, ¾ in.

" One Blaze Driver, " ¼, $\frac{7}{32}$ in.

Price, ... £10 10 0

The Table for Wood is made to rise and fall to suit different thicknesses, the Handle remaining at one uniform height.

considerable skill to produce an accurate result.

According to the price list it was supplied with 8 chisels ranging from ⅛" to ¾" width plus two blaze drivers. The Prestongrange machine still has this complete set of tools. Each is stamped with the number 3458 as is the machine. They have square shanks so that a key can be used to release them from the grip of the taper chuck.

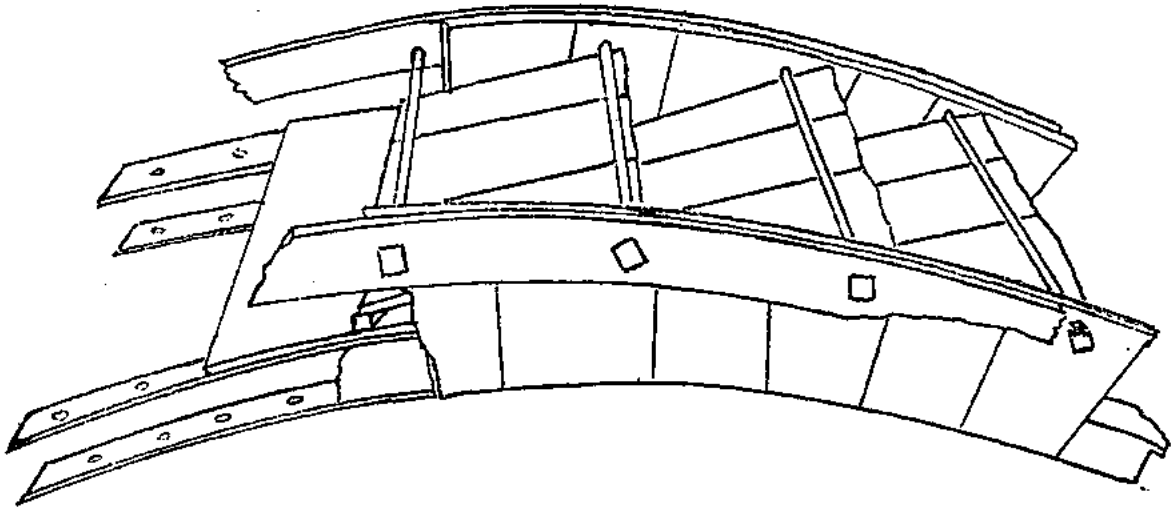
The machine is mainly constructed of cast iron. It stands about 5'6" high and weighs about 3 cwt. There is provision to take up wear in the table guides. In all the machine was simple and made to last. The example described is in as good operating condition as it was possibly 80 years ago when despatched from Mathiesons warehouse at 23 Cockburn Street, Edinburgh. The selling price was £10-10-0.

W.D. Nimmo

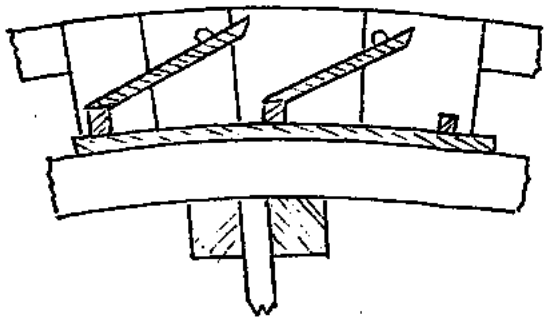
Wanlockhead Museum Trust During rather more than a year's work, the men employed under the Job Creation Programme have completed the first phase of the Open Air Museum and have linked a variety of features by nearly three quarters of a mile of paths. Some arduous work during the winter of 1976-7 saw the big wheelpit in Whytes Cleuch re-built. This was probably tackled just in time to save the fine sandstone arch on the tailrace from total collapse. The last project was the re-building of two of the ore hearths at Pates Knowes. These incorporate some of the original cast iron hearth furniture found on the site, so are unique examples of the eighteenth century 'Scotch Hearth'. To surround them, some of the massive walls have been built up from their foundations. R.T. Clough's Smelting Mills of the Yorkshire Dales has provided references to traditional small mill construction, and various nineteenth century textbooks on lead metallurgy, plus accounts of the Wanlockhead and Leadhills smelt mills, gave guidance as to details. The arches which were such a characteristic feature of the old smelt mills were of course no more, but using shaped stones, painstakingly collected, the JCP team were able to build a twelve foot arch across one of the hearths, and this is now seen in its traditional setting.

Efforts to remove the piece of the waterwheel which once drove the bellows have had to be abandoned meantime because of the weight of mud caught in the floats. Consideration is being given to ways of creating fluid conditions in the wheelpit with water jets for a further attempt next year. However, sufficient fragments were recovered from the pit to re-assemble a small section of the old wooden wheel. See sketch. It seems to have had a diameter of 18ft 6ins, and to have had 48 floats, 2 foot wide, held by iron bolts. Eight pairs of spokes connected the rim to what was probably a timber axle.

The efforts of two retired miners have opened up and timbered the adit to the old Loch Nell mine. Members of the Glasgow Spelaeological



FRAGMENT OF THE PATES KNOWES WATERWHEEL, WANLOCKHEAD



SECTION SHOWING CONSTRUCTION

SCALE OF FEET

Society are now surveying the workings, which run along the vein under Wanlock Dod. Once this work is completed, a 90 foot shaft, which gives access to the Straitsteps - Margaret Levels, will be bridged and the stopes beyond cleared of the broken rock stcked in them. This will enable parties of visitors to safely visit the 'roustings' where the lead miners, more than 200 years ago, hacked out the ore on which the industry depended.

The Job Creation Programme has also enable the Museum Trust to have a qualified Librarian and an assistant working on the indexing and arranging of the collection of valuable books in the Miners' Library. This is being done under the direction of Mr J. Crawford, BA.. ALA, FSA.

W. Harvey.

Glasgow Museums A major addition to the displays at the Transport Museum, Albert Drive was opened on 23 February 1978. The Clyde Room, housing a large part of the Museums' fine collection of ship models was inaugurated by the Prince of Wales, in the presence of a gathering that included many notable Clyde shipbuilders. The new gallery, converted from yet another bay of the horse-tram depot opened in 1894, has a number of large top-lit cases, each containing a group of ship models linked thematically. This approach to display enables comparisons to be made more readily, and the top-lighting minimises the visual impact of the glazing. Altogether this is an attractive addition to a fine musuem.

Biggar Museum Trust The Museum's collection of Albion relics has been augmented by a 1951 Glasgow Police 'Black Maria', and by parts of the former general office at Scotstoun. The latter include two lion masks, the brass registered-office plate, war memorial, and several boardroom portraits. With the aid of a job-creation grant, the Trust's Albion lorries are being restored to working order. Job Creation employees have also been engaged in cataloguing books, documents and photographs, and preparing display stands for Greenhill farm. A recent acquisition is a small wooden kiosk from Lanark Loch, which was formerly the Lanark Racecourse Station Booking office.

The Gladstone Court Museum is now ten years old, and continues to grow in stature. It is unrivalled in Scotland for the lively presentation of the past. If you wish to support this delightful museum, you may join the trust for an annual subscription of £1, or as a life member for £15. The address of the Trust is : Gladstone Court Museum, Biggar, ML12 6DN.

Scottish Railway Preservation Society The most important news from the SRPS is that planning approval for the Bo'ness scheme has been granted. In collaboration with Falkirk District Council and the Scottish Development Agency, and with the support of the Scottish Tourist Board, the Society intends to construct about one and a half miles of new railway

along the foreshore at Bo'ness, primarily an amenity for local inhabitants and a tourist attraction, terminating at Bridgeness. A link with the existing British Rail sidings at Bo'ness is planned.

The restoration of 'Maude' (illustrated in SIH 3) has been virtually completed, and she made the front page of The Scotsman on 24 August in all the glory of her North British Railway lined black livery. The Society's exLNER buffet car has also been restored to original livery, and the Caledonian Railway corridor third from the Bluebell Railway has been thoroughly restored and repainted. 'Morayshire' has been re-wheeled after bearing repairs, and work has started on the restoration of the British Railways standard 2-6-4T no 80105, and of ex-National Coal Board 0-6-0T no.1.

New acquisitions include an outside-cyliner a Barclay 0-6-0 saddle tank, National Coal Board Lothians Area No 13, of 1916, from Lady Victoria Colliery, and a second 165 horsepower Ruston & Hornsby diesel electric locomotive, ex Clyde Iron Works. The SRPS is appealing for funds and physical assistance to develop at Bo'ness. Donations and offers of help, please, to W. Peddie, Esq., 13 Royal Terrace, Linlithgow (telephone Linlithgow 2975).

Ayrshire Railway Preservation Group This body was formed in 1974, and aims to preserve and restore to working order items of railway and associated interest in south west Scotland. Its collection includes, besides many small relics, four diesel locomotives, three narrow-guage and one 88DS Ruston, one LMS 13 ton mineral wagon , a G&SWR hand crane, and a G&SWR signal cabin. The group holds regular meetings and arranges visits, as well as having Sunday work parties. Subscription to the group costs £2.00 for adults and £1.00 for under 18s, and should be sent to the secretary, Jim Davidson, 31 Moorfield Avenue, Kilmarnock, KA1 1TT.

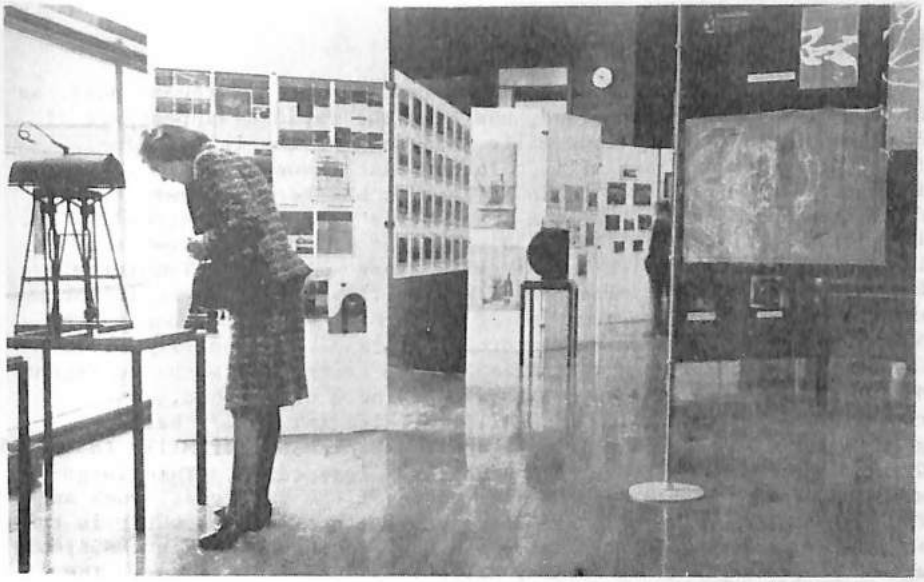
Strathspey Railway We congratulate the Strathspey Railway on securing its light railway order and at last starting a public passenger service. It has been a long haul, and the achievement of success reflects great credit on the handful of enthusiasts who had the vision to back the scheme when the Scottish Railway Preservation Society had, reluctantly, to withdraw from it in 1971.

Linlithgow Union Canal Society This most enterprising of Scottish canal societies has purchased a 36 foot boat for public trips on the Union Canal from Linlithgow basin. The Victoria has been bought with the aid of a grant of £2500 from Lothian Regional Council and the same amount raised from a share of the Shell award (see p78) and by private donations. She was built in 1972 at Braunston, and has been finished as to resemble a steamboat. She is, however, diesel powered. Cruises have operated on Saturdays and Sundays during the summer. Details of membership (basically ordinary membership costs £1 per annum) from Mrs Wilma Thomson, 59 Deanburn Park, Linlithgow.

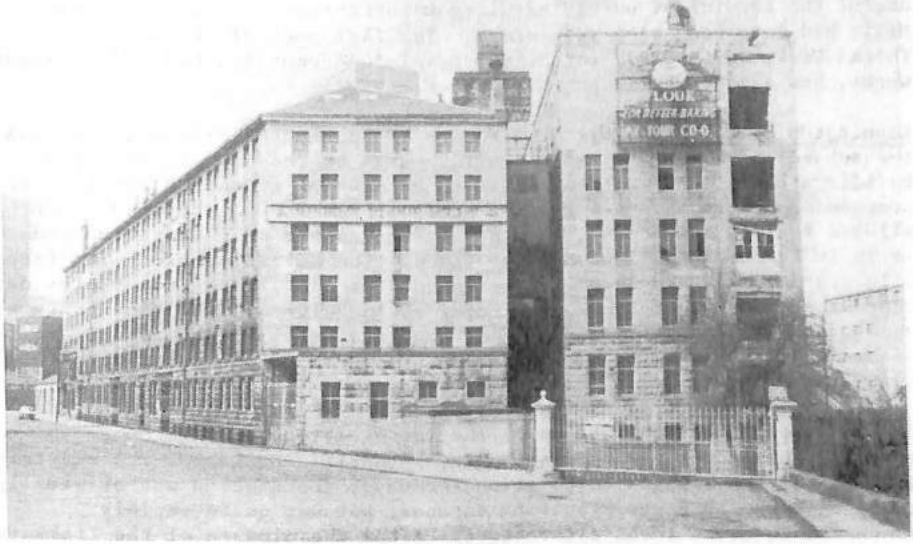
Scottish Inland Waterways Association SIWA has continued its working party programme by further work at Lochrin basin. Earlier activity there rightly earned a Shell award for the Association. There was a substantial SIWA involvement in the Kirkintilloch Gala Week in June with a series of events on the water throughout the week. It seems to have been a great success. SIWA has also been actively involved in discussions about the form of the proposed crossing of the Union Canal by the Edinburgh ring road, which threatens to cut off the eastern end of the canal.

New Lanark Conservation & Civic Trust Recent progress in the village has been striking. Job-creation teams have transformed the foundry/dyeworks area, have cleaned and re-pointed most of New Buildings (as well as gutting the interior, rebuilding chimney heads and executing roof repairs), and have done a good deal of work on Long Row, to enable it to be sold to restorer-purchasers. The second phase of the restoration of Braxfield Row is well under way. The repair of the School by the Ancient Monuments section of the Scottish Development Department is progressing well. The reconstructed roof was being slated in the middle of August.

Among the many visitors to the village this summer were 160 members of the International Economic History Congress, which was meeting in Edinburgh. Despite poor weather, the excursion was highly successful, and must have made the village many new friends. The excellent teas supplied by the Village Group in the Church were particularly commended!



Part of the exhibition in Motherwell College of Technology mounted for the Scottish Society for Industrial Archaeology's autumn conference, 1977 with Mrs Margaret Lind, wife of the SSIA chairman, admiring one of the exhibits.



The Regent Flour Mills, Bunhouse Road, Glasgow, after the removal of the machinery. On the left is the granary, on the right, the mill.

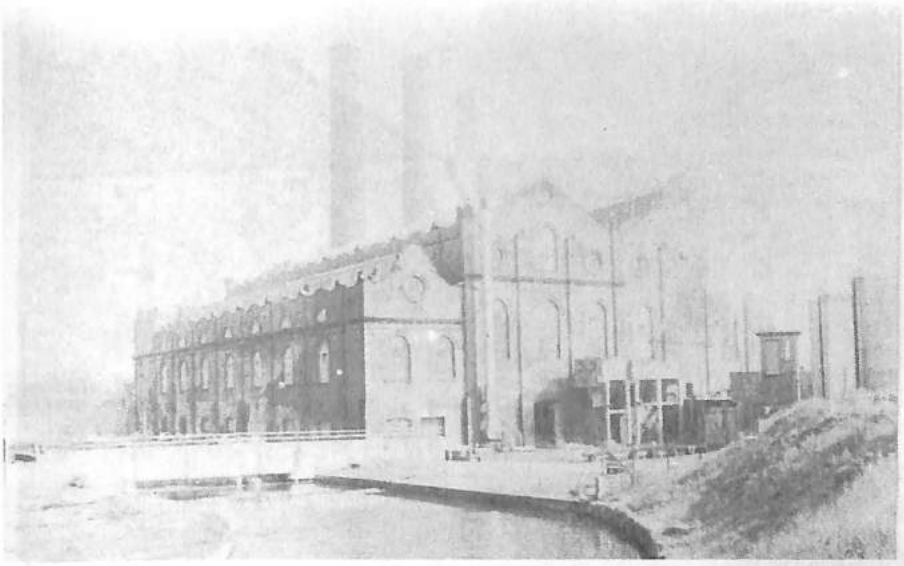
Site News

Flour Mills One of the most striking features of the recent past, so far as demolitions is concerned, has been the rapid disappearance of first-generation roller flour mills, and some of the last steam-driven stone-ground flour mills. In our last issue we noted the destruction of Port Dundas Grain Mills : it has been followed by the Florentine palace-style Kingston Grain Mills (see illustration). The demolition of Kingston Mills (NS584648) also reduces the number of important polychrome brick buildings in Glasgow to one - Templeton's Carpet Factory. The elimination of roller flour mills began in the early 1970s when the construction of a new mill at Leith enabled the SCWS to dispense with its extraordinarily grandiose Chanillot Mills (NT257761) and Junction Mills (NT263762) in Leith, and with the Regent Mills (NS564663) in Glasgow. All have now been demolished, most recently the Regent Mills. Tod's Mill in Leith (NT266767) has also gone, replaced by an office block, and the Centre Street Mills (NS585646) Glasgow of William Primrose & Co have also disappeared. This large-scale demolition highlights the importance of the survivors, such as the Bishop Mills, Partick, (NS563663) still lingering on, which is the subject of preservation proposals, and the Washington Street (NS581651) and City of Glasgow (Port Dundas) Mills (NS588667) in Glasgow. The City of Glasgow Mills, with the adjoining Port Dundas Sugar Refinery, form a notable landmark, and have an unrivalled view of the city. Together with the adjacent canal offices of 1812 they form a group whose future must be secured in any replanning of the area.

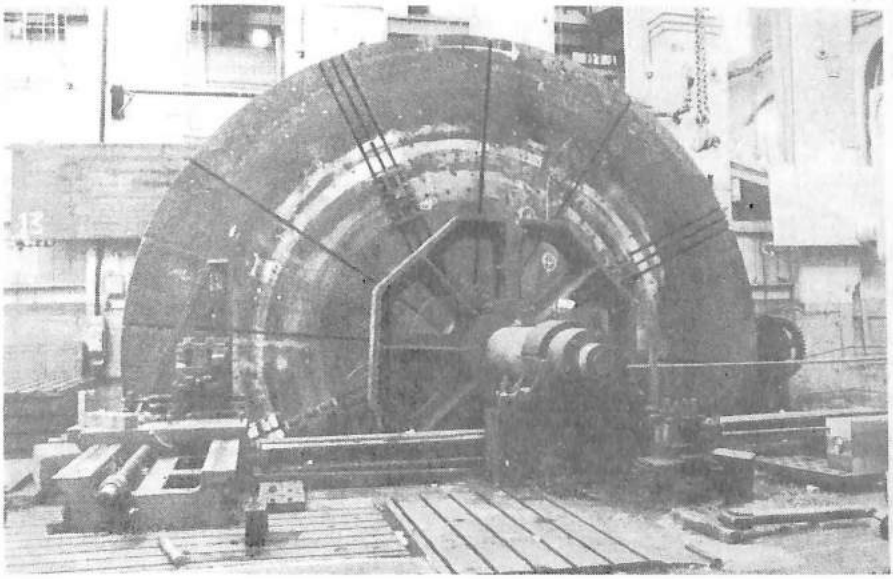
Albyn Cotton Mills (NS597639) The modernisation of the Strathclyde Distillery of Long John International has involved the demolition of one of the handful of surviving Glasgow cotton-spinning mills. Albyn Mills had long been used as a store. The last part of the Mile End Thread Works (NS608642), latterly part of Anderson-Strathclyde's Bridgeton works, has also recently gone.

Bonnington Mills (NT263761) The future of Bonnington Mills, Leith, was the subject of a public enquiry in Edinburgh at the end of June. The buildings block one possible access to an area of ground on which it is proposed to build houses for owner-occupation. Though they have been allowed to fall into decay, they are still capable of restoration and it is to be hoped that they can be saved. The Belfast-roofed mill (see illustration) has a unique fire-resistant interior, with iron plates on cast iron beams and columns, and retains, largely complete, the last water wheel in an Edinburgh mill. Part of the land on which the houses are to be built was the site of a picturesque skinworks, demolished in the mid 1970s.

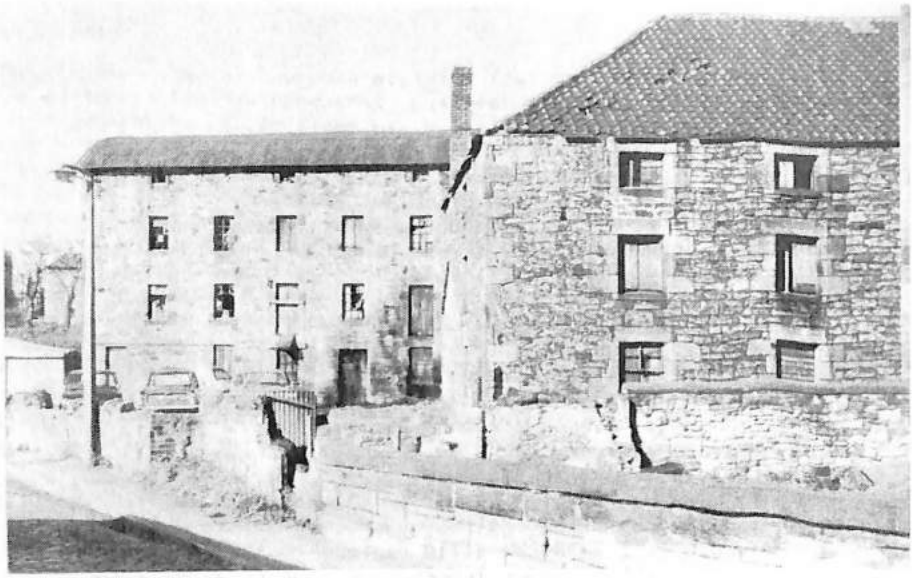
Pinkston Power Station (NS597667) The last vestiges of this once-prominent Glasgow landmark disappeared in April. Built for the electrification of the Glasgow Corporation Tramways, the station was originally equipped with large reciprocating engines, but was quite rapidly converted to house turbo-alternators. After the closure of the tramways,



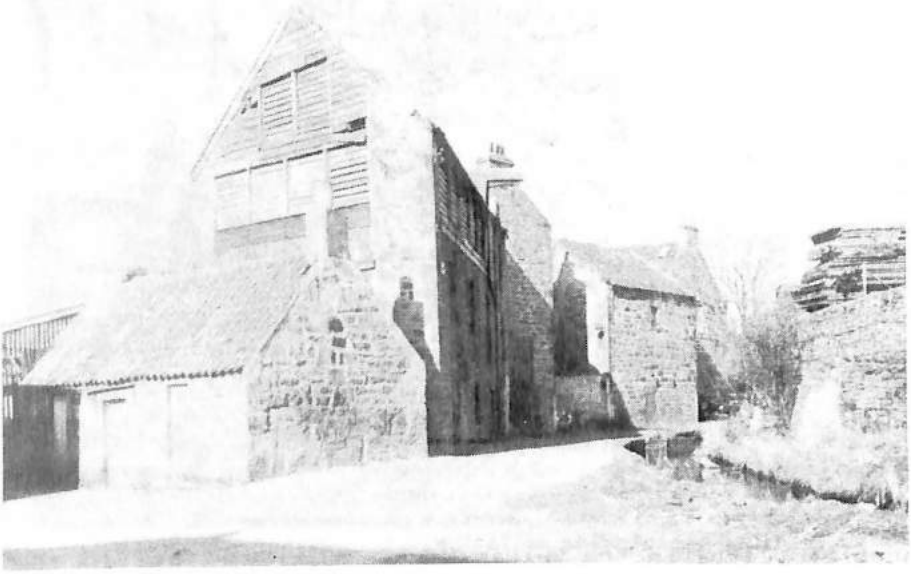
Pinkston Power Station, Port Dundas in its last days of operation. The station was designed to draw supplies of coal via the canal from the Monklands, as well as by rail.



Faceplate lathe in the Vulcan Works, Paisley. This was the largest of four such machine tools in the works. It was home-made, and could take more than 30 feet in diameter. Now scrapped.



Bonnington Mills, Leith, the subject of a public enquiry into its proposed demolition. The mill building is on the left, and the granary on the right. This photograph was taken in 1971.



Bonnington Skinnery, up the lade from Bonnington Mills, c1971.

Former railway bridge over the Tummel at Ballinluig as converted for road traffic. Note the cast-iron decorative terminals to abutments and piers.

Road bridge over the Tummel Ballinluig, now used by pedestrians only. This structure was built in 1891 with funds raised by a public subscription organised by the minister of Logierait parish.

the station was used to generate electricity for the grid, but despite re-equipment in the 1950s it became increasingly uneconomic to operate. After the opening of Hunterston B nuclear power station it was no longer necessary to retain the works, even as standby.

Bridges at Ballinluig (NN977521 and NN977522) Two nineteenth century girder bridges over the River Tummel at Ballinluig, Perthshire, are being replaced by a new structure. The older of the two was built by the Highland Railway in 1865 for its Aberfeldy Branch and was designed by Joseph Mitchell. It was Mitchell's first application of the then - new technique of using cast-iron for bridge piers, and an early use of wrought-iron lattice girders. After closure of the branch line by Dr Beeching the bridge was converted for road traffic, replacing a lightly-built bowed-truss bridge constructed in 1891 by Somervail & Co, Dalmuir, which survives as a footbridge. The railway bridge had a 5-ton axle load restriction imposed at the end of 1976, which had presumably precipitated rebuilding.

Millhill Meal Mill, Arbirlot, Angus (NO601407) This unusual building has for a number of years been the subject of preservation proposals, but has recently lost its most distinctive feature, a bow-fronted kiln at a higher level than the grinding mill. Despite vandalism the mill building is we understand still repairable, and it is to be hoped that it can be saved.

Last Scottish Pipeworks The Allanton pipe works at Newmains (NS828555) now part of the Hepworth group, is threatened with early demolition. Formerly a well-known supplier of glazed fireclay pipes for sewer construction, under the ownership of Loudon and Russel, the works was, like all the other recently-surviving fireclay pipe factories in Scotland, closed by Hepworths in a rationalisation move. The others have all been demolished, and within the next few months the Allanton Works, with its eight beehive and four rectangular kilns will also disappear.

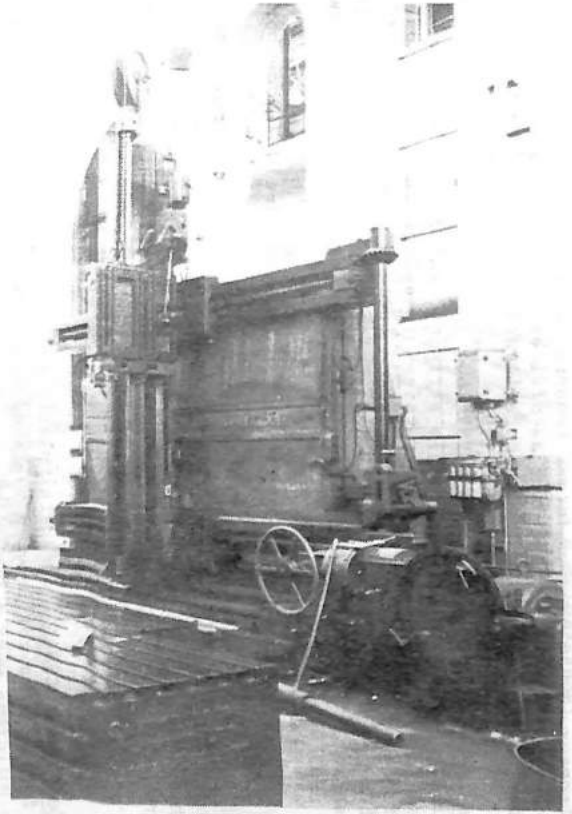
New Coal Shipment Plant at Ayr Harbour (NS333228) The old system of loading colliers by hoisting railway wagons and tipping them is being displaced at Ayr by a new system using hopper wagons and conveyors. The apparatus will also be able to handle coal brought in by road. Ayr handles about a half million tonnes of coal annually.

(Business Scotland January 1978)

Crane, Guild Street Goods Station, Aberdeen (NJ943060) This swan-neck hand crane, illustrated in SIH 1.2 was removed to York Railway Museum last autumn, as forecast. 54/60T Cales cranes supplied by the Hewden/ Stuart group were used at both ends.

(Project Scotland November 17 1977)

Kingston Grain Mills, Glasgow, built 1876, in the style of mid 15th century Florentine palaces.



The Shanks horizontal and vertical planer at Fullerton, Hodgart & Barclay's Vulcan Works, Paisley, purchased by Gerald Oldfield for the SSPHM.

Forfar Tannery (NO456509) The former tannery, a prominent feature of Castle Street, and latterly occupied as offices and as a plumbers' store, has been demolished owing to deterioration in its condition.

Newcomen Engine House, Saltcoats (NS257414) One of the most interesting industrial monuments in Ayrshire, this striking feature of the Saltcoats landscape is to be consolidated and retained in a Scottish Development Agency financed rehabilitation scheme, which includes the creation of a nine hole golf course, and a pond adjacent to the engine house. This is a most welcome development on the part of Cumminghame District Council and the SDA.

(The Ardrossan & Saltcoats Herald 2 December 1977)

Terminal Building, Renfrew Airport (NS507663) After a long period of neglect and vandalism the former terminal building at Renfrew has been demolished. Designed by Sir Basil Spence this distinctive arched structure has been disused since the opening of the present Glasgow Airport.

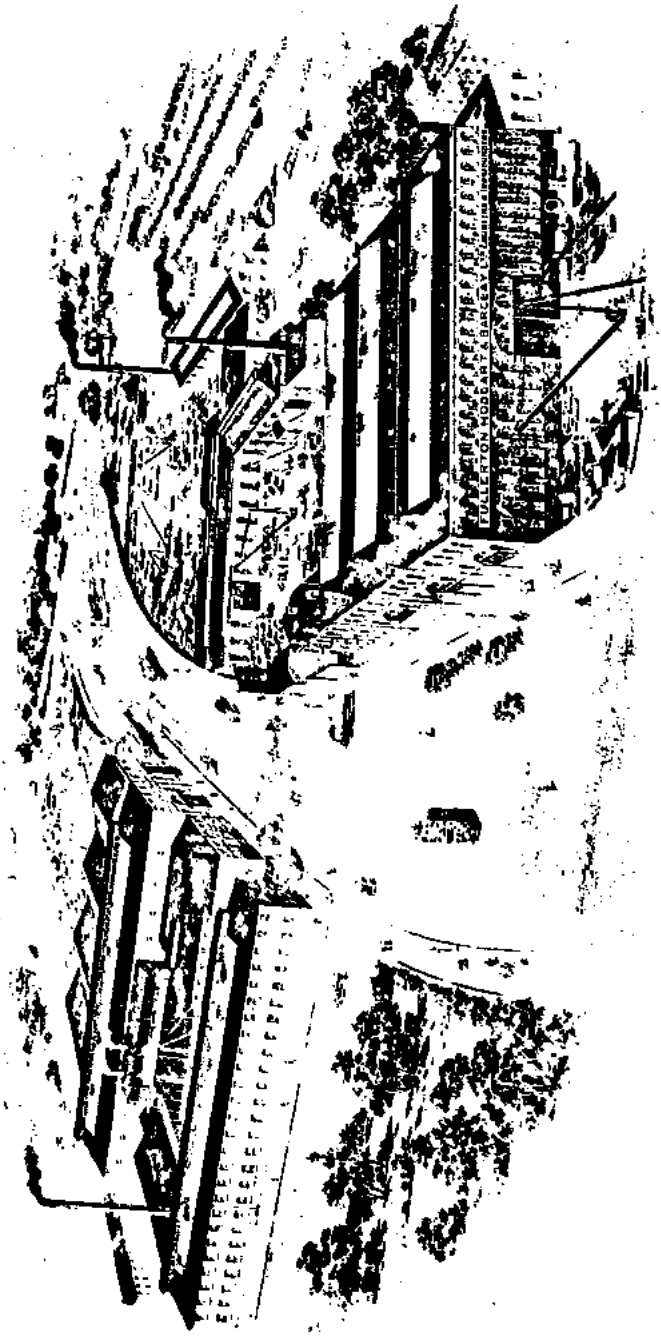
W. Lind

Brora Colliery (NC898040) A particularly sad loss has been the offices of the former Brora colliery, demolished last year. These eighteenth century buildings were a link with one of the most unusual Highland industrial enterprises, and attractive in their own right. We understand that they were demolished to make way for a proposed industrial development which has not materialised.

Fullerton, Hodgart & Barclay Ltd, Vulcan Works, Renfrew Road, Paisley, (NS487645) As a number of readers will be aware, this company appointed a receiver in June 1977 and today Vulcan Works stands empty awaiting a new occupier or demolition.

As the company could trace its ancestry back to 1838 it does not seem right to allow this event to pass without a brief comment and a ressume of the company's history. We have been fortunate in being allowed to remove the bulk of the business records, and it is hoped that these will provide the stimulus for some enterprising historian to set out the facts in much greater detail in the future.

There is little point in recording the very early days in great detail since there is a measure of conflict between a summary published in 1977 and the local directories of last century. The last mentioned show that Donald & Craig were engineers, millwrights and machine makers occupying premises at 7 Aberdeen St. from 1836/7 to 1840/1 moving to 8 Renfrew Street in 1842/3. A change in style to A. Craig & Co. later to become Craig, Fullerton & Co. with additional accommodation in Hamilton Street, and an indication that they had included foundry works in their summary of output is given in 1848/9. The inclusion of the name Vulcan Works first appears in 1865/6 and the final change in style to Fullerton, Hodgart & Barclay is mentioned in 1873/4.



A finished cost book for 1846/9 has survived showing that there were Craigs, Barclays and Hodgarts employed during this period, it also gives an excellent indication of the customers and the products of such a business at this time. These range from lathes to workshop cranes, shawl & carpet cropping machines, fulling machines, vomit boilers, water wheels, industrial and domestic boilers, 20'0" x 10'6" x 2'6" punts (probably for use on the Glasgow - Ardrossan canal), and vast quantities of material from rolling stock to turntables for a number of local railway companies. Steam engines are included in the book up to No. 40, there are some blanks and there is every possibility that boiler Nos. 1-14 and engines Nos. 1 - 15 were made by others, the bulk by Barr & McNab, Engineers & Shipbuilders, Paisley.

Not surprisingly, considerable specialisation in their output took place between this date and the last years before the end of the century when they became a limited company. A number of illustrated catalogues issued shortly after this event show that steam engines, rolling mill engines, hydraulic machinery, baling presses, and plant for bleach and dye works, sugar refineries and starch works formed the usual range of manufactures.

A further change in 1899 was the company making its first mine hoist to be followed in 1910 by its first electrically driven mine hoist. Their country-wide skill as founders at this time should not be overlooked, castings of every description up to 50 tons weight were produced and their selection to manufacture the machinery castings for the 'Lusitania' and 'Mauretania' as well as other well known ships of the period, gives an indication of their standing. The foundry was closed down after the first world war, but the purchase of Maitlands (Iron-founders) Ltd., Airdrie as a wholly owned subsidiary in 1953 continues to make use of these earlier skills.

Although steam engines and hydraulic deck machinery continued to be manufactured for some years, this was discontinued shortly after the second world war. Thereafter mine hoists, large capacity air compressors, single and double effect evaporators, and plant for steel manufacturers formed the greatest part of their production. In mine hoists alone, over four hundred and fifty units were turned out for use throughout the world.

It is not the purpose of this short note to discuss the company's difficulties. The problems of the world mining industry in recent years has made it difficult for those businesses who supplied much of the associated equipment. The resulting loss of turnover coupled with a very sharp rise in inflation, seems to have caused the company to be unable to re-equip to meet the changing market, and to increase its efficiency and productivity to the level required to ensure its survival.

The record of shareholders and directors contain a number of interesting names including those of Lt. Col. S.I.J. Haldie DSO, and Sir William

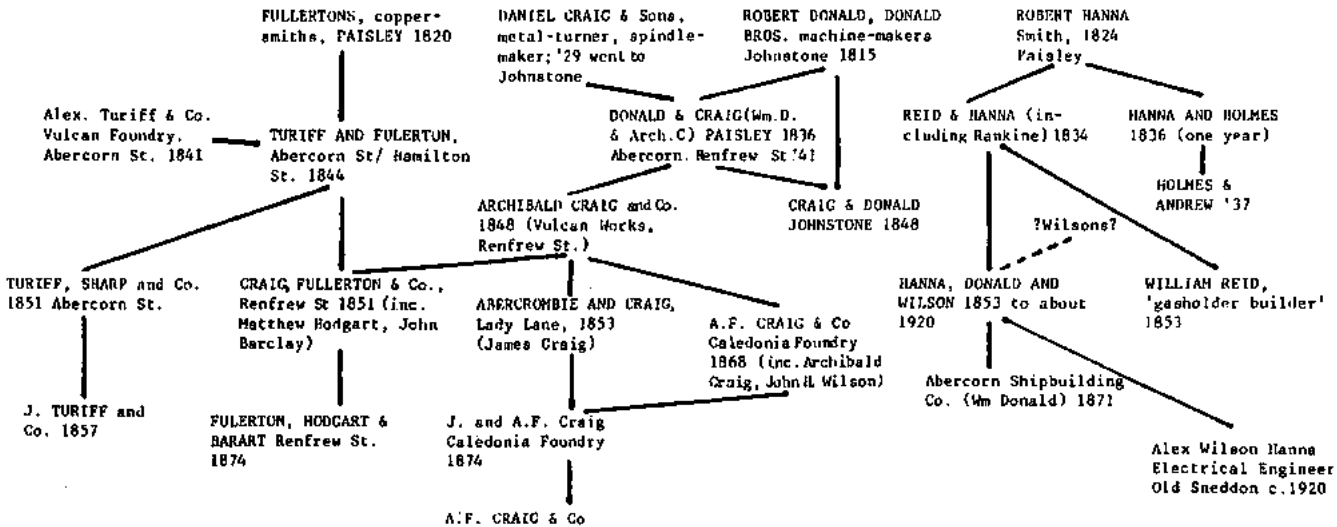
Arrol whose mother was Agnes Hodgart, and who married his cousin Jessie Hodgart as his second wife in 1905.

Fullertons, Craigs and Barclays have been in Paisley for very many years, but Hodgarts come from rather further afield, certainly from Quarrelton as an intermediate stop, but much more likely from Cornwall as the descendants of Cornish miners brought in by George Houston, to work the Quarrelton "thick coal" during the latter half of the eighteenth century.

W. Lind

Saucel Iron Works, Paisley (NS475636) Another part of Paisley's engineering heritage has disappeared with the recent demolition of Millen Brothers' Saucel Iron Works. Disused and empty for about fifteen years, this works was formerly well-known as one of the select group of inland shipyards. Vessels were assembled in an open yard opposite Anchor Mills and dismantled for shipment.

A NETWORK OF PARTNERSHIPS AMONG LEADING PAISLEY ENGINEERS OVER A CENTURY.



This family tree of some Paisley engineering firms is almost entirely derived from the Paisley directories; identities can be established by noting the forenames and private addresses of the directors. Newspaper reports have confirmed some of the dates. There were some Wilsons who were metal-turners, weavers' wrights and later "machine-makers", sporadically from 1824 to 1844, but no positive identification. Matthew Hodgart may be relate to William Hodgart of White and Hodgart, bringing yet another firm into the network. The Vulcan works in Renfrew St were built by Donald and Craig in 1841.

Sylvia Clark

MISCELLANEA

The Clyde Pottery Co. Ltd. Period of 1857-1863

A pretty clear insight into the operating of the Clyde Pottery Co. Ltd. at Greenock from the period 1857-1863 can be found by examining the company papers.

From these we learn that the pottery was formed to "manufacture earthernware, including grinding of flint and other necessary preliminary processes and the sale of the manufactured article and the doing of all such other things as are incidental to the above objects". A list of the shareholders is given in the company documents.

One practical potter is noted, the remaining shareholders consisting of an assortment of local merchants. They were :

James Alexander of No. 2 Patrick Street. Merchant. 10 shares.
William Watt, No. 55 Regent Street, Greenock. 10 shares.
William Orr, No. 62 Union Street, Greenock. 10 shares.
Robert Millan, No. 41 Union Street, Greenock. Merchant. 6 shares.
John White, 4 Inverkip Street, Greenock. Druggist. 6 shares.
James Brownlie, 38 Arthur Street, Greenock (Manager). 16 shares.
(Brownlie being the practical potter and works manager of the concern)
Robert Wright, 20 Bank street, Greenock. Writer. 2 shares.
Robert Henry, 11 Grey Place, Greenock. 6 shares.
James Dunn, Sawmill Road, Partick, Lanarkshire. 10 shares.

The company was registered by Findlay Daniel Morrison, Writers of 35 Nicholson Street, Greenock on 25th April 1857. However by May 1857 the company was obviously of a very unsound structure for at a shareholders meeting it was agreed to "draw a loan of twenty pounds on each share held by them the loan to be as interest, at the rate of £2 per cent per annum. The advance to be made up in the usual balance in June".

We see that the pottery continued to supply the export trade which had been established by the previous owners, the Shirleys, and we learn that a resolution was passed "that in order to get rid of such stock as cannot be easily disposed of otherwise the manager be authorised to ship a consignment, a quantity not exceeding one hundred crates, and that to loan the extra discount charges for an advance from the consigneur who would draw the amount from Mr. Alexander who agreed to accept the shareholders' guarantee from any loss" By June 1849 this practice was in operation with 30-40 crates of goods being sent to Mauritius.

In addition to this agreement the shareholders had obtained a bond loan of £300 from the Royal Bank of Scotland to help operate the concern. At a meeting of August 1861 the company was in difficulties and Mr. Brownlie desired another £700 loan to carry on the business which was not showing profit.

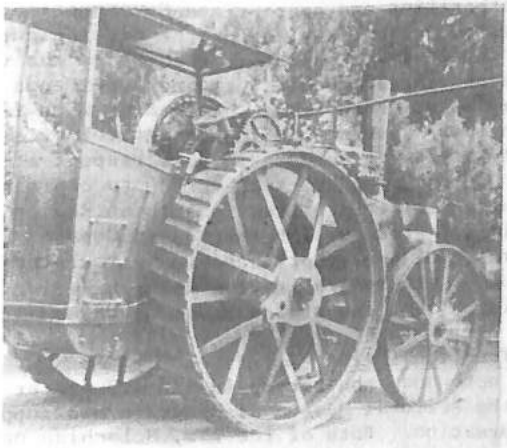
The shareholders decided however that the pottery stock should be advertised for sale and the workbuildings and plant offered to the public with the view of finding persons interested in operating the concern.

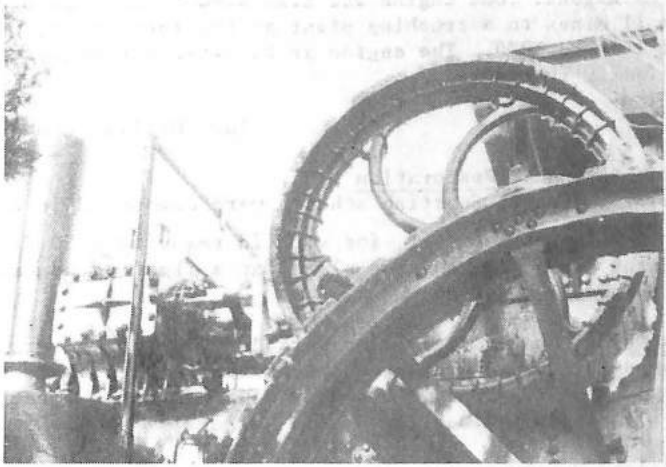
At an extraordinary meeting of 15th October 1862 Mr. Brownlie, the manager, informed the shareholders that "John Donald an Edinburgh china dealer was prepared to lease the pottery from the proprietors and relieve the old company by June 1862". The plant was then valued but it was agreed to allow £800 of the purchase money to remain with the new company at 5 per cent interest "repayable within four years by annual installments of five hundred pounds". (sic)

The title of the new concern was the Clyde Pottery Co. John Donald, the china dealer, was the principal but silent partner along with Robert Glen Brown, John McLaughlan and Robert Brownlie remained as a managing partner.

Jewitt, in "Ceramic Art of Great Britain" 1878 states that considerable business was done with Calcutta, Mauritius, Rangoon, Java, Newfoundland and Canada in addition to the market within the United Kingdom itself. The firm operated as the Clyde Pottery Co. with slight alteration in Partnership in 1872 when Brownlie retired followed by another in 1875 when John Donald also retired. Robert Glen Brown and John McLaughlan who acted as partner and works manager, continued operating the concern until 1902. At this date the pottery again became known as the Clyde Pottery Co. Ltd. and continued in this fashion until 1905 when the works closed.

G. Quail





Two further views of the Bow, McLachlan traction engine in the National Museum of Rhodesia, Bulowayo (Courtesy Department of Geology, National Museum)

Union Canal Report

The long-awaited Union Canal report has at last been published. Drawn up by the Union Canal Development Group (set up by British Waterways Board, local authorities and appropriate Government agencies in 1975) the report seems to present a plan for the development of recreation and amenity on the canal. The report recognises the value of the canal to the industrial archaeologist, and recommends (among other action) the removal of obstacles to navigation when financially feasible. With local government finance severely restricted it is recognised that little can be done in this respect at present. A Lothian Region Action Group has been set up to coordinate work by voluntary bodies and other agencies in Lothian Region, and it is hoped that a similar group will be set up in Central Region. An abbreviated version of the report has been circulated for public comment, and copies are available from Lothian Region Department of Physical Planning, 1 Parliament Square, Edinburgh.

Paisley-built Traction Engine

Further to the note and photograph in SIH 1.3, Peter Locke, Curator of Geology in the National Museum of Rhodesia has supplied some additional information. Both of the Bow, McLochlan engines have survived, the other being in private hands. Apparently shortly after the turn of the century they were acquired by H.S. Henderson, V.C., who had mining and farming interests. He used them to replace oxen after an outbreak of rinderpest in 1896. One engine was used on contract from 1902 to c1906 hauling wood fuel for steam-driven machinery on the Globe and Phoenix Mine, Que Que, using a train of converted ox wagons. One engine was also used to cart gold ore from several small mines to a crushing plant at the Theta Mine, Que Que from about 1914 to 1920. The engine at Bulawayo was acquired from the Henderson family in 1970.

(per William Lind)

Shell Awards for Canal Restoration

The following awards to Scottish schemes were announced in February :

The Polmont Conservation Unit, for work in removing a 50 ft coal barge from the Union Canal, and towards plans for a floating educational centre on the canal ... £400

Linlithgow Union Canal Society, for work done on the conversion of obsolete weed-cutters, and towards the provision of a boat suitable for public service ... £275. Towards the upkeep and equipment of the Museum at Linlithgow Basin ...£75

Scottish Inland Waterways Association and other volunteer groups, for work done and to be done in the vicinity of Lochrin Basin on the Union Canal ... £275

Glasgow Junior Chamber of Commerce, for work at Maryhill on improving access to the Forth and Clyde Canal, and towards schemes for helping under-privileged children to enjoy the canal ... £125

A consolation prize of £50 was awarded to Templar Community Council for the creation of an amenity area on the site of an infilled basin at Cloberhill.

Shell (UK) Ltd are to be congratulated on this much-needed boost to the Scottish lowland canals.

BOOK REVIEWS

C. Northcote Parkinson, The Rise of Big Business, Weidenfeld and Nicolson, London, 1977, Pp.276. £5.95

This book, intended probably for the non-specialist, encapsulates a number of paradoxes. It purports to be about the origins and growth of big business since the eighteenth century and yet, apart from a reference or two to W.J. Reader's first volume on ICI, it shows little evidence of being familiar with specialist work on the subject. There is no mention of Wilson on Unilever, Barker on Pilkingtons, Campbell on Carron, Mathias on Allied Suppliers, Coleman on Courtaulds, Musson on Crosfields, Supple on Royal Exchange Assurance or Clapham and Sayers on the Bank of England. It follows, without further comment, that the journals, Business History Review and Business History, do not seem to have featured among Parkinson's reading either. Perhaps, a modified version of a law is worth propounding : if the blindfolded teach the blind, braille is essential for both.

The book is divided into three parts broadly on a chronological basis, although the divisions between them are more apparent than real. Part I, the background (in Parkinson's parlance) is concerned with the landed estate, commerce, transport and communication. It is good to find landowners treated as businessmen but surprising to find (considering the treatment assigned to the United States elsewhere in the book) no mention or discussion of the American land office business and the land companies. Furthermore, no historian these days would ignore the significance of the non-agricultural segment of landowners' incomes ; Parkinson is content with a narrow and desultory discussion of the effects of urban development on the incomes of the Bedfords and other London landowners. This omission is particularly surprising in the light of recent studies by Richards and others, which demonstrate that mining, quarrying, the promotion of transport improvement and involvement in the City were all sources of external revenue.

Parkinson entitles Part II "The Dynasts", apparently because steel, armaments, pertroleum, chemicals and photography, the subjects of his chapters, were sectors in which he believes unusually large family fortunes were made, retained and used to perpetuate social and economic power. This treatment begs many questions, notably the validity of approaching Business History from the point of view of the entrepreneur. This is of significance for assessing this book since throughout there is little systematic on turnover, business operations, management problems or profit. The chapter on petroleum is particularly poor being a garbled account at a superficial level of an industry, which in recent years has attracted substantial research efforts and produced a number of publications unnoticed by Parkinson, notably by Larsen, Forbes, Williamson and Daum.

Part III, "The Technocrats", examines the electricity, automobile and aircraft industries in a potted fashion but is much more international in its scope than other sections. Like other parts the emphasis is more technical and entrepreneurial than financial or organizational. There is no reference to the work of Chandler or Hannah, and relatively well written description in an anecdotal style cannot excuse a failure to discuss multi-nationals in a systematic fashion.

That there are large gaps in Parkinson's reading might perhaps be expected in one who in his preface makes the judgement, in faulting its practitioners, that "much of our economic history is written from a socialist standpoint, the ill-treatment of labour being its central theme". There are probably those who might wish that Parkinson's censure were true; unfortunately, he compounds his misunderstanding with olympian naivety : "few who use the words (Big Business), he tells us, "have the least idea of what they mean". Parkinson has done little in this book to increase the number of the well informed.

University of Strathclyde John Butt

K.A. Tucker (ed), Business History Selected Readings, Frank Cass, London, 1977 Pp. xvi + 442. £10

It can be no easy task to produce a cohesive set of readings in any subject let alone one so diffuse in definition and suspect a discipline as business history. Dr. Tucker's collection of twenty reprinted articles, to which he contributes a tightly-written introduction and a hitherto unnoticed analysis of a New Zealand firm, is carefully organised in four sections. The first, dealing with aims and methods, starts with Professor Cole on the basic question of what is and what is not business history, and also includes Hyde on profit maximisation and Galambos on the theory of the growth of the firm. In the second part, accounting for over half of the volume, are fifteen case-studies of either British or American nineteenth-century entrepreneurs, firms and industrial structure, ranging from Peter Payne on the Govan Collieries to an unusual piece by Cohn on the Social Organisation of Credit in a West African Cattle market. The third part contains five readings in techniques of business management of which the most important is Yamey's article on Accounting and the Rise of Capitalism, originally published in 1964 but here provided (as in two other cases) with a short addendum outlining subsequent steps in the discussion. The final part is composed not of reprinted articles but of appendices, including one on interpreting accounting data and a select bibliography of business history which comes up only to 1973 and could with advantage have been shorter but annotated.

While there are many excellent articles amongst these readings and obviously a certain amount of overlap from section to section, it nevertheless appears to this reviewer at least that the collection's balance is askew. In view of the relative neglect of some topics such

as the part played by different social mores and legal environments on the behaviour of the entrepreneur or firm, we could have done with fewer of the case-studies. Other issues make only an irritatingly brief appearance, such as the crucial question of financial yardsticks by which to evaluate a firm's performance. Dr. Tucker in his introduction sets himself three objectives; to encourage further study and analysis of business records, which this collection may conceivably do; to aid the development of 'a critical perception of the value and uses of research in business history' which prompts the unpleasantly direct question "value and uses to whom?", and third, in which he succeeds, to show a number of good examples of the business history genre - how much more appealing the selection might have been had he included a few examples of 'bad' business history. As it is, in this day of the xerox machine, one cannot see this set of readings having much market appeal either to aficionados of business history or the uncommitted student.

University of Aberdeen A.J.Durie

J. Butt and J.T. Ward, (eds), Scottish Themes, Scottish Academic Press, Edinburgh. 1976. Pp.189. £5

This volume consists of ten essays presented to Edgar Lythe on the occasion of his retirement from the Chair of Economic History at Strathclyde University. All the contributors were staff members at Strathclyde and, apart from an article by Tom Devine which presents convincing evidence that Glasgow and Aberdeen were affected less adversely by the Cromwellian Union than traditional history assumes, attention is concentrated on the period from 1725 to 1840. Five contributions relate to topics drawn from the formative years of modern Scottish development between the 1720s and 1840. Tom McAloon adds to the understanding of trade and credit in the early eighteenth century by skillful use of the papers of the minor Edinburgh merchant, Edward Burd, while Baron Duckham, Gordon Jackson and John Butt deal respectively with aspects of the coal, whaling and iron industries. Hamish Fraser adds a perceptive study of the attitudes of cotton workers, employers and others involved in the Glasgow Cotton Spinners Trial of 1838.

The concluding essays relate to the character of episcopal congregations in the mid-nineteenth century (based on records of the Helensburgh church and St. Andrew-by-the-Green, Glasgow), the performance of the Standard Life Assurance Company between 1850 and 1875, aspects of working-class conservatism in the nineteenth century and a detailed survey, drawing on technical and trade catalogue sources, of the shipbuilding machine tools industry from the 1830s to 1940. These are contributed by Barbara Thatcher, James Treble, John Ward and John Hume. For the business historian, the articles by Treble and Hume will obviously be of greater interest.

Reviewing the collection as a whole, it must be said that the impression given is of individual efforts rather than a team approach to Scottish themes. John Ward writes principally of English developments in working-class conservatism while some of the other essays are either on peripheral social and economic issues or on themes which are British - even international - rather than distinctively Scottish. It can, of course, be argued that the 'Scottish theme' is a mirage diverting historians to look for special characteristics where none existed or where the dominant trend was towards assimilation in the British and International economy. Yet Professor R.H. Campbell, writing from outwith Strathclyde, is already well known for his arguments against treating Scottish developments as simple adjuncts or 'replica' case studies of what happened in England, notably in the period before 1840. Few of the authors take the opportunity to write their contributions in the light of this controversy; had they done so, a more rewarding and stimulating book could have been produced.

However, given the special and secretive conditions under which such presentation volumes are normally prepared, it would have been unreasonable to expect a major contribution to the continuing argument over the validity of the concept of Scottish themes. While the title selected may have led readers to exaggerated expectations, the substance of this jointly edited work contains useful additions to the widening range of publications now available on Scottish business, social and political development since the seventeenth century.

University of Glasgow T. Hart

R.J. Overy, William Morris, Viscount Nuffield. Europa Publications, London, 1976. Pp.xlvi + 151. £4.50

In this most enjoyable little book Mr Overy asks himself one basic question : why was it that in this industry which had so many failures and so many false trails in its early days. William Morris emerged as the giant? What were the crucial 'right' decisions that gave him such a lead in the 1920s, though to be sure Mr Overy then has to go on to ask what were the 'wrong' decisions that lost him that dominance in later years? Morris himself used to emphasise the virtue of personal control - not really very helpful because till the late 20s almost every motor car firm was under personal control. No more enlightening was his statement that if you look after your men they will look after you. Certainly he had few labour problems but that was largely because he kept down the level of employment in his own factories. He could pay generous wages and bonuses himself but screwed his numerous suppliers down as far as he possibly could, no doubt to the considerable disadvantage of their workers.

Clearly he predicted the future demand curve for cars far more accurately and far earlier than his contemporaries. And he had the courage to back his predictions. Buying out components on the scale he did allowed him to keep his capital needs low in the early years and to expand his output when the chance came without serious danger of outrunning his recources. In the immediate post-1918 years he trod cautiously, holding to his pre-war formula and then choosing the moment superbly to risk cutting prices before any of his competitors, on the assumption that he would double his sales. The lead he then established through low price and volume output became cumulative.

All this Mr Overy sets out with admirable clarity. Restrictions on the use of the Nuffield papers have prevented him from offering any significant new material but he analyses the material already available with considerable perception. After 1928 things did not go so well for Morris. Others now followed the low price formula while Morris followed them along the path of proliferating models and style changes that he had so rigorously eschewed in the twenties. The size of his empire required a reorganisation of the management structure that was slow to come. When it did arrive the degree of local autonomy provided resulted in weak central direction when Morris's own powers began to fail after the Second World War.

Morris was one of the last of the old style entrepreneurs, an autocrat and an engineering genius with a keen understanding of the basic economics of his industry. But success on his scale created problems of a kind he was not well fitted to control and, as Overy points out, he was ill fitted, too, to play effectively the public political role that his industrial position offered to him, though to be sure he deployed his public fortune in a manner worthy of his pioneering greatness.

The book is well worth careful study and is all the more welcome for a quite excellent introductory essay on entrepreneurship by the general editor of this new series of business biographies, Neil McKendrick. Those who follow will find it hard to match the level of this volume.

University of Edinburgh S.B. Saul

Grove, D.R. and Philips, D.C. Ransomes of Ipswich. A History of the Firm and Guide to its Records, Institute of Agricultural History, University of Reading, 1975. Pp. 64

The firm of Ransome began about 1780 and quickly made its name through its chilled-steel plough shares. Robert Ransome's discovery that a share with a hard under-surface and a relatively soft upper surface kept itself sharp during normal wear was an important step forward in the technology of ploughing. A further step, taken in 1808, was the patent for the manufacture of interchangeable parts, which gave the opportunity not only for replacing worn or broken parts in the field, but from the

manufacturer's point of view meant some standardisation, and therefore more economic production, of plough bodies. These and other patents gave the firm a secure financial base, and it became an example of a firm that could serve not only local, but also national and international needs. In 1841-49 the Orwell Works were built in the harbour area at Ipswich, and this sea outlet helped trade enormously. In the late 18th and early 19th centuries, Australasia and East Europe were amongst the firm's most important customers. For this reason, the firm's business archives are a valuable source for the study of the development and spread of farming tools in relation to improvements in cultivation in many parts of the world. Ransome has catalogues printed in Arabic, Bulgarian, German, Estonian, French, Greek, Dutch, Italian, Lithuanian, Polish, Portuguese, Rumanian, Russian, Swedish, Spanish, and Hungarian. This important archive has been deposited by Ransome, Sims & Jefferies Ltd in the Agricultural Institute of Reading University.

The book should be looked at in the context of a recent Swedish publication by Jan Kuuse, Interaction Between Agriculture and Industry. Case Studies of farm mechanisation and industrialisation in Sweden and the United States 1830-1930 (Institute of Economic History, University of Gothenburg) 1974, which, though primarily concerned with Sweden and the USA, nevertheless has a strong bearing on the agricultural implement industry in Britain.

National Museum of Antiquities Alexander Fenton

J.T. Coppock, An Agricultural Atlas of Scotland, John Donald,Edinburgh, 1976. Pp.260, diagrams, maps. £15

Professor Coppock has been concerned with illustrating the spatial distribution of the data collected by the Department of Agriculture (and Fisheries), and other sources. He firmly puts this data, in the proper context.

The 'Atlas' gives a comprehensive view of the physical aspect of farming looking at relief, soils, climate, and seasonality. His chapter, on the 'Man-made Framework of Farming' analyses the human basis of Scottish agriculture - but this type of data is much more difficult to collect purely on a Scottish level, and is also difficult to map. Nonetheless the attempt has succeeded.

It is particularly in the section on land use and crops that the author's maps are most illuminating. It seems that in education generally, the use of visual and technical aid has two purposes : firstly (and not infrequently!) it can be used for sheer showmanship - academic gimmickry; secondly however, it can be a very valuable educational aid, visual impact often having greater force than the written word. Coppock's maps surely come into the second category. His maps are particularly useful if you use his own criteria for judging them. Professor Coppock states that " .. readers should not accept maps uncritically at their face

value. I would ask those who believe that maps record the obvious, what mental image they had of the distribution before they saw the map..."

How many laymen would have thought that East Scotland was so predominant in potato cultivation? Yet Coppock's map illustrates the point vividly.

The chapter on Livestock Farming is also well laid out - the maps here are particularly comprehensive and instructive.

The chapter on the 'Historical Perspective' is useful not only for geographers, agriculturalists and politicians but for the economic historian too. The author's broad thesis is an interesting one, that "the agriculture of Scotland in 1970 was recognisably in its broad outlines that in 1870, though with fewer farmers farming fewer acres .." The great achievement of agriculture has been the substantial increase in productivity - British farming is very efficient indeed.

There are however a few black spots on the horizon. The number of dairy cattle (as Coppock illustrates) is actually decreasing. The possibility of food shortages and the spiral of increasing food costs perhaps make marginal cultivation more attractive. Coppock ends by saying that the future pattern of farming will depend on decisions taken in Brussels. Brussels seems to be having no advantageous effect on the above mentioned black spots. Many would argue that the picture since 1970 bears this out in other areas too.

Professor Coppock's gargantuan task should be appreciated. He has compiled a fine text-book which will have great reference use for civil servants and politicians. Since it also has educational value one hopes that University libraries will stock many copies - at £15 few people in the University could afford their own.

Reid Kerr College Duncan McTavish

D. Daiches, Glasgow, London, 1977. Pp.243, ill. £6.95

Professor Daiches has celebrated his return to his native Edinburgh by presenting us with a book entitled Glasgow. While it is a pleasure to welcome Professor Daiches back to Scotland the welcome given to his book is more reserved. The book is a good first introduction to multi-facetted Glasgow and will be helpful to those who come to Glasgow, as strangers, and wish to have a friendly guide through its history. Professor Daiches write persuasively of various periods of Glasgow's history culling some of the more picturesque descriptions presented by early commentators like Defoe and Robert Forsyth. There are also good chapters on Education and the Arts and Entertainment High and Low which successfully bring a flavour of Glasgow to the reader.

But it must be said that this is primarily descriptive history, rich in anecdotes and therefore enjoyable reading. But it is not the sort of history which will help the urban historian to understand the morphology of cities, nor the planner to find any leads into a deeper understanding of Glasgow. The multiple deprivation for which Glasgow is notorious is barely touched on and the questions raised in a city the industrial base of which has been withering away for half a century are given cursory treatment.

Professor Daiches concludes his final chapter with the brave words of the city's motto Let Glasgow Flourish. Such a fine ending will no doubt please the Lord Provost of that "dear green place" but it will not help him to solve the city's probleem.

University of Glasgow Olive Checkland

David J. Lyon (comp.), The Denny List, National Maritime Museum, Greenwich, 1975. 4 vols. £100.00

Compilations of source lists have enjoyed an increasing popularity in recent years. This four volume production is a distinguished contribution to that genre, though in range and style the publication goes far beyond simple listing. Mr Lyon's task was complicated by the fact that the records of the Denny shipbuilding enterprises are split in two parts. Surviving plans, technical documents and photographs are located in the National Maritime Museum at Greenwich, while the bulk of the business papers are in the Economic History Department collection of business archives in Glasgow University. (The administration of this part of the collection is now the responsibility of the University Archivist, not, as reported by Mr. Lyon, within the overall supervision of the Scottish Record Office). Mr Lyon has successfully blended information from the commercial papers with details of the ships drawn from the National Maritime Museum collection to produce a relatively standardized profile of each vessel. Information has been compiled under fifteen headings, though understandably not every vessel can be completely documented. Most are identified by Yard Number, Name and Date; vessel Type and Owner; Dimensions and Tonnage; Machinery; Contract Information; Trials; Description (of rig and fittings), Performance, Plans and Photographs. In many, information is also available on Costs.

While the detail provided is intended as an extended catalogue and guide to the material in the National Maritime Museum collection, those interested in shipbuilding and ships will be able to make their own compilations in areas which interest them. Cost and Profit and Loss calculations are possible for many vessels; change in vessel size, type and ownership can be uncovered; variations in machinery type and power may also be extracted. The patient reader may indeed discover a wealth of information, and employ the volumes in ways quite different from that intended by the compiler.

Inevitably not everyone will be equally satisfied with the arrangement of the work. The confusion over early ship and yard numbers in the Denny Papers has been arbitrarily resolved by applying an artificial, but consistent, numbering. This is adequate for the main purpose of the compilation, but makes minor difficulties in using the list to easily identify vessels in the business papers. This is a criticism of perfection and does not detract from this valuable and welcome publication. Mr Lyon has provided a workable model in a difficult area of source list and guide publications. Perhaps beyond his own hopes it also makes fascinating reading.

University of Glasgow A. Slaven

Roderick Floud, The British Machine Tool Industry 1850-1914, Cambridge University Press, 1976. Pp.217. £6.00

It seems incredible to your reviewer that a work claimed by the publishers as 'the first history of the British Machine-tool industry during an important period of its development' should not contain a single illustration of one of these 'crucial' devices. Despite this weakness, however, Professor Floud has put industrial historians in his debt by his careful analysis of the size, nature and linkages of this highly significant industry. The book falls into two parts. The first is concerned with the British Machine-tool industry as a whole, and with its competitve position vis-a-vis its American rival. The second is an analysis of the performance of Greenwood & Butley, the Leeds engineers (hardly a typical firm) as machine-tool builders.

Professor Floud's strength is statistical analysis : his weakness a lack of feeling for both men and machines which leads him into a number of pitfalls. He is scrupulous in stressing the limitations of his data and methods, and rightly so. It is unfortunate, however, that this first trial of the application of quantitative methods to the British engineering industry should ask such stereotyped - and frequently unanswerable - questions. On the basis of this book, the quantitative approach is not the way ahead for economic historians it is often quoted as being. The application of idealised economic models to an industry characterised by small-scale production of specialised machines in a climate of rapidly changing technique in both production and end use seems a singularly sterile-exercise. Greater insight into productivity increases in Greenwood and Batley could be derived from a study of machine-tool performances and works-management practices than from the application of the Cobb-Douglas production function. Here we have an example of the tyrrany of the theory over the historical technique appropriate to the problem.

Perhaps the most serious deficiency in the book is its failure to come to grips with the structure of demand for machine tools in Britain and in the other main markets. Enough plant registers of companies

survive, and there are sufficient detailed descriptions in the technical press of new or re-equipped factories to give a reasonable insight into both the types of tools being ordered and of the suppliers. These sources are not so complete as to allow for thoroughly rigorous analysis, but with careful use they prove illuminating.

In spite of these, and other criticisms which can be levelled at this book it is a most interesting, courageous, and ultimately modest approach to a difficult historiographical problem. It will be required reading for anyone who in future wishes to analyse the structure and performance of the engineering industries, irrespective of geographical location.

University of Strathclyde John R. Hume

Some recent booklets

Moray Past and Present is the title of a collection of old and new photographs compiled by Mike Seton and published by Moray District Library 21 Tyock, Elgin. The photographs are all drawn from the librarys' local history collection. Most of them show street scenes in the towns and villages of the district, but there are also some excellent views of the harbours of the district, including one extraordinary one of Portknockie harbour jam-packed with Zulu fishing boats. The quality of the reproduction is very good indeed, and the booklet is reasonably priced at £1.50 plus postage.

A number of recent pamphlets on Scottish transport are to hand. The Forth & Clyde Canal : A Kirkintilloch View is published by Strathkelvin District Libraries & Museums, 170 Kirkintilloch Road, Bishopbriggs, Glasgow G64, price 50p including postage. It consists of a brief history of the canal, with particular emphasis on passenger and freight services. There is a short section on shipbuilding at Kirkintilloch. The illustrations are well chosen and informative, and the author, Don Martin, is to be congratulated on a lively booklet containing something for the specialist as well as for the layman. Dundee on the Move : A century of public transport is published by N B Traction Group 31 Forfar Road, Dundee, price 75p + 15p postage. Written by A.W. Brotchie and J.J. Herd, it consists of a series of photographs showing every mode of public transport from horse buses, through horse, steam and electric trams to trolley and motor buses. The quality of reproduction leaves much to be desired, but the rarity of some of the views compensates for this defifiency. Ian Stewart's Glasgow by Tram, published by the Scottish Tramway Museum Society (price £1 by post) has crisper reproduction, though the layout is conventional to the point of dullness. It presents 81 photographs showing Glasgow's trams from c1880 to closure in 1962 in locations all over the extensive system. Not the least interesting aspect of this booklet is the background information to be gleaned from the views, making this a publication of wider interest than the title would suggest. Lastly, Queensferry Passage, by Ian Brodie, is the

West Lothian History and Amenity Society's second original pamphlet. Well-designed and produced, with line and half-tone illustrations, it deals with the ferry that plied between North and South Queensferry from the eleventh century until the opening of the Forth Road Bridge in 1964. It costs 60p plus postage and is available from the society's secretary, Patrick Cadell, 11a Tipperlinn Road, Edinburgh EH10 5ET.

Interest in Scottish pottery, as readers of SIH will be aware, has grown astoundingly during the last few years, fuelled by its collectability . The Scottish Pottery Society founded in 1972, has produced the first of a series of pamphlets entitled The History and Products of the Scottish Potteries. It consists of a series of illustrated notes on pottery and potteries partly drawn from the newsletters of the society, and is available from the Honorary Secretary, Janet W. Osborne, 162 West Princes Street, Glasgow. A much more ambitious production is Bo'ness Potteries : an illustrated history, published by Falkirk Museums on the occasion of an exhibition held at Kinneil Museum in 1977. Beautifully designed and printed on high-quality art paper, it has a substantial text by Christine Roberts and Beverly Lyon and numerous photographs of Bo'ness ware, marks and a few of the potteries themselves. Copies are available from Falkirk Museums Administration, 26 Abbotsinch Road, Grangemouth, Stirlingshire, FK3 9UX price £2.70, including postage.

The Ayrshire Archaeological and Natural History Society has sent two publications for review. Ayrshire Collections Volume Eleven (Second Series) 1971-1973 is a bound collection of pamphlets already issued. Of the six articles in the volume there are three of some interest to readers of this journal. Frank Brady's 'So Fast to Ruin : the personal element in the collapse of Douglas, Heron & Company' deals with the celebrated failure of the Ayr Bank in 1772; John Strawhorn's 'On an Ayrshire Farm 1823-4' has much information on farming practice, as well as much fascinating material on the social and personal life of the farmer concerned, Henry Richmond; lastly, 'The House of John Blair of Adamton : a medieval town-house in Ayr' by James Hunter consists largely of an analysis of the structure of this building during its demolition. This volume costs £3.50 and is available from the Society c/o The Reference Library, Ayr Public Library, 12 Main Street, Ayr. Round Old Ayr : a Guided Walk (price 30p) by Ronald Brash and Allan Leach is a model of a town walk, with superb sketches by G.S. Copland. The harbour and bridges are the only items of industrial interest included, but the booklet is worth having just as an example of how good a local history society publication can be.

An unusual publication, but a worthwhile one, is The Forth & Clyde Canal : Bowling to Castlecary, published by the Strathclyde Regional Council's Leisure and Recreation Department (price 20p). It consists of a folder containing information sheets on : Canal History, Local History, Geology and Scenery, Ecology, Industrial Archaeology and memories of the Canal. One of the most useful is a directory and map, listing bodies with interests impinging on the canal.

Periodical

The autumn 1977 issue of Industrial Past is to hand. This quarterly journal is published by John Keavey, 17 Uplands, Skipton, North Yorkshire to raise funds for industrial archaeology. The annual subscription is £1.35. The autumn issue includes a short article by Bill Harvey and Geoff Downs-Rose on the Charlotte Dundas, together with a mass of notes and news of very general interest.

BOOKS RECEIVED

J.C. Stewart, Pioneers of a Profession, Institute of Chartered Accountants, Edinburgh, 1977.
C. Trebilcock The Vickers Brothers, Europa, 1977.
Yarrow and Co Ltd, 1977.
A History of George Waterston and Sons Ltd, 1977.
B. Lenman, An Economic History of Modern Scotland, Batsford, 1977
R. Brandon, Singer and the Sewing Machine, Barrie and Jenkins, 1977.
T.C. Barker, The Glassmakers, Weidenfeld & Nicholson, 1978

CORRESPONDENCE

RECORD TEXT PUBLICATIONS.

SIR.- I wonder if you might be so good as to bring to the attention of your members the fact that the DUMFRIESSHIRE & GALLOWAY NATURAL HISTORY & ANTIQUARIAN SOCIETY is presently considering the possibility of a RECORD TEXT PUBLICATION for the Dumfries and Galloway area. The Society is of opinion that the need exists for the publication of transcripts from important source documents such as rentals, stent rolls, trade & business records, testaments, Kirk Session records (including registers of baptism, marriage & death), churchyard inscriptions, burghal records, diaries and others too numerous to mention here: All of which could be especially useful to genealogists, demographers and others operating within the region. The project must of neccessity be self-financing and to that end an annual subscription of £1.25 has been proposed: For this subscription members would receive an annual volume containing approximately 100 pages of typed/duplicated text (A4 size - 8¼" x 11¾").

To determine if sufficient interest exists for the support of such a publication I would ask such of your members as might be willing to subscribe to forward their names and addresses to the address given below: If a favourable response were forthcoming publication could commence during the 1978-79 session.

Yours sincerely,

James Williams
Editor to the Society.

Tranzay Villa,
Maxwell Street,
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25th January 1978.

PERSONAL

Retirals Our good wishes go to Mr. R.B.K. Stevenson, Director of the National Museum of Antiquities of Scotland, and Dr. A. Thomson, Keeper of Technology in the Royal Scottish Museum, on their retiral from these posts. Mr. Stevenson was an early member of the Scottish Society for Industrial Archaeology, and his sympathy with the subject in its early days in Scotland will be remembered. Dr. Alistair Thomson was a founder member of the SSIA, and has been a member of Council since its foundation. Through his good offices the Society has had close connection with the Royal Museum for most of its existence.

Appointments Congratulations are due to Mr. Alexander ('Sandy') Fenton on his appointment as Director of the National Museum of Antiquities of Scotland in succession to Mr. Stevenson. Sandy's contribution to Scottish rural history has been immeasurable : the Country Life Museum Trust, the Country Life Archive, a stream of articles in learned journals, two books, regular exhibitions at the Royal Highland Show all testify to his energy and enthusiasm.

We must also congratulate Mr. Donald Storer on his succeeding Dr. Thomson as Keeper of Technology in the Royal Scottish Museum. Don has, like Dr. Thomson, been a council member of the SSIA since its foundation, and was for a time its treasurer. He was also a founder member and first chairman of the Scottish Society for the Preservation of Historical Machinery. While assistant keeper in the RSM Don was closely involved in the restructuring of the Hall of Power, the creation of the Victorian Engineering Gallery, and perhaps most importantly in the setting up of the Museum of Flight at East Fortune.

It is also a great pleasure to note the appointment of Mr. J.L. Wood to succeed Don Storer as Assistant Keeper. Jim Wood was a council member of the SSIA for a number of years, and was one of the small group of enthusiasts who conceived the idea of the SSPHM. Jim brings to the RSM experience gained the hard way at Leicester, where he brought to life the Museum of Technology, restoring to working order two of the beam pumping engines which form the centrepiece of the museum.

Honour We were delighted to see that Strathclyde University conferred the Honorary Degree of Doctor of Letters on Emeritus Professor S.G.E. Lythe in July. Professor Lythe was the first professor of Economic History in the University, and first Dean of the School of Arts and Social Studies. For the three years before his retiral in 1976 he was Vice Principal. From his appointment to the Chair, Professor Lythe encouraged the study of industrial history and archaeology in the University. He was a founder member and first Chairman of the Scottish Society for Industrial Archaeology. He represents the industrial archaeological interest on the Ancient Monuments Board for Scotland.

Glasgow University in June conferred its Honorary Degree of Doctor of Laws on Robert Courtney Smith, President of the Business Archives Council, to our great pleasure. Robert Smith has been a great benefactor to business and industrial historians, both in encouraging the deposit of records and in helping to raise money for the employment of record surveyors. His helpful attitude to the Archives of Upper Clyde Shipbuilders and its constituent companies while acting as liquidator was essential to their emergency listing, transfer for safe-keeping and ultimate acquisition for the nation.

Marriage We must congratulate Dr. Peter Swinbank, immediate past chairman of the SSPHM and vice Chairman of the SSIA on his recent marriage. We wish him and his wife Jean every happiness in their future together.

WHO'S WHO

Scottish Society for Industrial Archaeology
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