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THE EARLY SCOTTISH LIMITED COMPANIES, 1856-1895:

AN HISTORICAL AND ANALYTICAL SURVEY

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Nearly half a century ago H. A. Shannon, in a seminal article, observed that "the public records of limited companies lie stacked, mile on mile, in the vaults of Somerset House, and there they have lain, some seventy years, unutilized for economic history or theory."² Since that time, a number of scholars have examined several facets of this source of social and economic information³ or have dipped into it in connection with specific inquiries.⁴ The files of those companies registered in Scotland, for example, have been used by Professor W. Turrentine Jackson and Dr. W. G. Kerr⁵ in their studies of Scottish investment in the United States, but no British work has been done to compare with Professor G. Heberton Evans's Business Incorporations in the United States,⁶ nor has any attempt been made to discover the precise magnitude or the intended purpose of the capital raised by British companies in the nineteenth century. This neglect is not entirely surprising. The volume of statistical data contained in the files of the dissolved and active companies is awesome. Before the advent of the computer their analysis would have been incredibly time-consuming, if not impossible. Even with the use of a computer, the raw data still has to be collected and the sheer cost of abstracting the relevant information has inhibited systematic study of the public records of these artificial persons. This paper presents the fruits

of one such inquiry. Modest as they are, it is hoped that they are sufficiently useful to stimulate further research into this potentially valuable body of materials.

It had been intended to investigate the files of the first five thousand companies registered in Edinburgh under the provisions of Joint Stock Companies Acts of 1856, 1862 and subsequent years. In the event, the grant made by the Social Science Research Council to permit the collection of data at West Register House, Edinburgh, was exhausted even before the records of the first three thousand dissolved companies had been fully examined. To have achieved so much is a remarkable tribute to the tenaciousness of my research assistant, Miss Helena Sokolowski, but the fact remains that our endeavors have been largely confined to the 2625 companies formed between 1856 and mid-1895 which had been dissolved by 1970, though it is strongly suspected that the inclusion of full data on the 311 companies formed before the mid-nineties and still in existence in 1960 would not radically have altered the nature of the results.⁷

Concentration on the companies registered in Scotland has been dictated not simply by convenience and out of a desire to make a contribution to Scottish economic history but because a detailed analysis of the earliest Scottish companies permitted the coverage of a much longer chronological period than a similar investigation of an equal number of London-registered would have done. It must be confessed that at the outset I was almost as interested in discovering the usefulness of the computer in processing a large body of statistical data as in the data themselves. If my simple methods are found to be of

value, subsequent inquiries into the public records of the limited companies -- should it be felt that they are justified -- can build upon and develop them.

The purpose of this paper, then, is to show how many Scottish companies were formed in each year in the second half of the nineteenth century, what they sought to achieve, how long they lived, why they passed out of existence, and just how much capital was involved. In addition, an attempt has been made to determine the magnitude of one mode of Scottish overseas investment and the possible relationship between the size, length of life and growth of the incorporated firm.

I

THE VITAL STATISTICS

(a) THE DATA

Some of the files of the dissolved Scottish limited companies are extremely bulky, swollen with documents, official returns, contracts, correspondence and schedules; others are thin, containing the minimum information required by statute, and a few are incomplete, their curricula vitae, as it were, victims of the same incompetence that contributed to their subjects' premature demise.⁸ Each file is numbered in chronological order of registration and invariably contains a Memorandum of Association, signed by at least seven persons giving the company's name, objects, nominal capital and the number of shares into which it was to be divided, and at least some of the returns which companies were required to make following their formal incorporation. Of these, the most important to this analysis is the "Summary of Capital and Shares". Made annually, this form shows inter alia the number of shares taken up, the amount called up on each share and the total amount of calls received, together with the names, addresses and occupations of the shareholders. Another important set of documents within the files are copies of any resolutions to wind up the company. The manner in which these and other data have been handled may appropriately be discussed under four headings: Birth, Death and Length of Life; An Industrial Classification of the Companies; Capital and Shares; Ownership and Control.

(b) BIRTH, DEATH AND LENGTH OF LIFE

Before the Companies Act of 1900 (63 and 64 Victoria, Ch. 48) a company was permitted to begin business as soon after incorporation as its directors thought fit, however small its subscribed capital.⁹ Its date of birth is therefore clear and precise. Whatever the complications attending its conception and gestation, a company came into being with the grant of a Certificate of Incorporation by the Registrar of Joint Stock Companies. Fixing the date of death is much more hazardous. For the purposes of this study, a company's duration has been determined by the date of the winding up resolution (where a company was wound up voluntarily) or the court order (in the case of a company wound up compulsorily) which effectively resulted in its subsequent dissolution, no matter how much time elapsed between this date and the removal of the name of the company from the Register at the Companies Office.¹⁰ The reason for adopting this course is threefold: the date of a winding up resolution or court order is unambiguous; the passage of either such a resolution or order made it legally impossible for a company to continue to carry on its business (except insofar as might be required by the liquidator beneficially to realize and distribute the assets); and, as it is the method adopted by Shannon, because it makes possible meaningful comparisons with English experience.¹¹

Unfortunately, the lives of a large number of companies (229 or 8.7% of the dissolved companies considered in this study, see Table 4 below), were not terminated by voluntary, supervisory or compulsory winding up. Some simply withered away, to be struck off

the Register many years after their effective lives had ceased. To pinpoint their demise -- especially if this took place before 1880 -- is impossible. By the Companies Act of 1880, after a series of letters of inquiry from the Registrar to the directors or officials of such companies had gone unanswered, these firms, following an announcement in the Edinburgh Gazette, were simply dissolved.¹² As it usually took some time before the Registrar decided that a company was defunct, to use the date of gazetting in the calculation of a company's length of life tends to give an erroneous impression of longevity. A more accurate assessment of when such firms went out of business may be made by assuming that it was not long after the date of their last annual return of capital and shares. "As it is difficult to imagine why a company in effective existence should fail to make the cheap and easy returns prescribed and should ignore the Registrar's intermittent circulars on default, the assumption cannot involve any significant error."¹³ Thus, unless there exists some additional evidence in the files of such delinquent companies to make greater precision possible, the date of death of companies which dissolved "in disregard of legal form" was taken as the year following the submission of their last "Summary of Capital and Shares".¹⁴

By following these simple but realistic rules, it was possible to determine the duration of life of the great majority of companies. Those that remain to be considered are those which cannot be said to have enjoyed any effective existence: the abortive companies. In this study, companies categorized as abortive were those (a) which lasted less than one year (i.e., from the date of incorporation to the beginning of formal winding up proceedings);

(b) which made no substantive returns to the Registrar other than those necessary to qualify for a Certificate of Incorporation; (c) the contents of whose files indicated that very little or no business was conducted; and (d) whose capital was either "not subscribed for" or whose called up capital was manifestly too small to attain the stated objectives.¹⁵

In addition to ascertaining the date of death, an obviously essential step in the determination of the duration of life, an attempt has been made to group companies according to the reasons for their dissolution. This information is often to be found in the wording employed in winding up resolutions, but such morbidity data are frequently as vague and misleading as contemporary medical diagnosis. Suffice it to say that, once again, Shannon's definitions have been adopted.¹⁶ Thus, companies have been grouped (see Table 4). according to the following modes of dissolution:

1. Abortive;
2. Sold, amalgamated or reconstructed (including companies that were taken into public ownership under subsequent Nationalization Acts);
3. Wound up compulsorily, or under supervision, or by reason of liabilities -- in short, insolvent;
4. Wound up voluntarily, without any reason being given, usually because the company's prospect were unfavorable or, more rarely, because the company had fulfilled the purpose for which it was started;
5. Dissolved in disregard of legal forms, or unknown, and struck off the Register under the provisions of Section 7 or the Companies Act of 1880 or the similar clauses of subsequent Acts (e.g., Section 26 of the Act of 1900; Section 295 (5), of the 1929 Act).

(c) AN INDUSTRIAL CLASSIFICATION OF THE COMPANIES

Table 14 and, in greater detail, Appendix 2, classifies the dissolved Scottish companies according to the objects for which they were incorporated. This has not been done simply by reference to the name of each company although such titles -- where they are descriptive -- often furnished valuable clues to the principle purpose or purposes for which a firm came into being, and their use often tipped the balance in classifying certain cases. A more important source of information was the object clauses in the Memoranda of Association, but even the use of these data presented considerable difficulty. Rarely did the subscribers to the Memoranda state the purpose of their proposed company in simple and unambiguous terms. Indeed, since a company was expressly forbidden to undertake any business not set out in its Memorandum, the law actively discouraged them from doing so. As a widely read practical guide to the formation and management of joint stock companies warned: "the greatest inconvenience follows from companies having too limited powers."¹⁷ Accordingly, the recommendation was made that "the Memorandum should specifically enumerate all the business that the company [was] likely to undertake."¹⁸ In the majority of cases, therefore, it was necessary to determine the main object of a company from many that ostensibly seem to be of equal importance.

This ambiguity does not stem solely from the demands of the law or the inflated claims of the promoters, but was frequently a reflection of the legitimate aspirations of the founders of the company. Conscious that success in attaining the immediate objects

of their infant concerns would mean growth and diversification, the subscribers to the Articles of Association sought from the outset to avoid any subsequent legal impediment to engaging in related activities. Thus, colliery companies, for example, would seek to remove any obstacle to the mining of iron ore, iron-making, the processing of chemical by-products, the manufacture of bricks, and a miscellany of trading activities; whiskey distillers anticipated the production and sale of cattle food; and land and cattle companies invariably made provision for working minerals and merchandizing either on their own account or on commission. The majority of manufacturing concerns made certain that they could "buy and sell," not only their own products but similar or related articles "brought in" from other suppliers; and banking and financial concerns cleared the way for conducting business in real estate, stocks and bonds, money-lending and the like.

These data, coupled with the unavoidable suspicion that some promoters may deliberately have sought to disguise the true nature of their companies in order not to provoke competition or, more culpably, as a prelude to fraud, do not make for precision. Nevertheless, erroneous classifications have, it is believed, been reduced by the systematic use of supplementary information contained in the company files and by taking into account the magnitude of nominal capital, the location of the proposed company's activities and existing monographic work in Scottish economic history. Thus, a shipping company with a grandiose title and patently exaggerated objectives, possessing a nominal capital of, say, £10,000, and known from additional material in the file to have purchased a single

sailing ship (or even a fractional interest in one) was classified a "single ship company" (413)¹⁹ rather than a concern engaged in ocean shipping (411). A company called the Universal Mining and Exploration Company, whose file makes clear was engaged in tin mining in Cornwall and which operated with a called up capital of £2,500, was not placed in the "metal and coal mining and quarrying overseas" category (150) but in category 115. And several large companies apparently destined to be involved in a wide range of activities encompassing real estate, land, cattle and lumber in North America have been appropriately allocated by reference to the work of W. Turrentine Jackson and W. G. Kerr.

To provide further examples would provoke tedium. It is hoped that enough has been said to indicate that every effort has been made to achieve the maximum accuracy permitted by the available information, although doubtless errors remain. With this caveat, companies were classified according to the categories set out in Appendix I. These are similar to those in the Standard Industrial Classification of the United States Central Statistical Board,²⁰ but they have been amended and supplemented to take account of fields of activity that were more prominent in the Scottish economy of the nineteenth century than they are today. Furthermore, an attempt has been made to distinguish between domestic and overseas enterprise in order to indicate the degree to which Scottish investment was oriented towards overseas activity. It will be observed that there are eight principle divisions, each divided into major groups. Each major group has been subdivided into a varying number of classes

reflecting the activities that may usefully be distinguished in any effort to indicate the nature of early Scottish joint stock enterprise. These classes have been made as specific as the underlying information would allow. Inevitably, there is an irreducible muzziness which mirrors the behavior of the companies themselves. To have been more precise would have been spurious; to have been less so would have reduced the present analysis to the vagueness which inhibits the use of the results of past inquiries of this kind.

(d) CAPITAL AND SHARES

Whereas Shannon, Todd and Macgregor²¹ have shed much light on numerical trends in British company formation and the nature and stability of the early joint stock companies, they tell us much less about the volume of capital involved in these companies. Yet the data that would permit such a calculation are available in the annual Summaries of Capital and Shares contained in the company files. Only the enormous labor involved in their abstraction and, in a pre-computer age, their manipulation can explain this neglect. Even for this analysis of the first three thousand Scottish companies the task has been extremely time-consuming.²² Three basic magnitudes are involved: the nominal capital, the called-up capital and the denomination of shares.²³ All of these, in the case of each company, could change over time. The nominal capital, initially specified in the Memorandum of Association, usually remained unaltered for several years after incorporation. Indeed, the size of original "capital" was typically pitched so high that this figure often served most companies throughout

the entire span of their existence, but a thriving company invariably increased its nominal capital with the passage of years. Conversely, after 1877, less successful concerns, particularly those adversely affected by periodic bouts of depression and those anticipating voluntary liquidation, tended to write down their capitals.²⁴ The share denominations of the great majority of companies, established at birth²⁵ -- tended to remain inviolate. This is not to say that changes could not be made -- the subdivision of shares of large amount into shares of smaller amount was permitted by the Companies Act of 1867 -- but, with the exception of overseas Mortgage land and cattle companies, they appear to have been comparatively infrequent among the Scottish companies in the period under consideration.²⁶

In comparison with the nominal capitals and the share denominations, the statistics relating to the amount of capital called up (sometimes referred to as the issued or paid-up capital) are extremely volatile, even effervescent. Rarely a year went by without changes in these figures. It must be assumed that it is this characteristic which has hitherto discouraged attempts to calculate the magnitude of the paid-up capital of British joint stock companies at different periods of time. For this analysis, note was taken of every change in the total amount of calls received by every dissolved Scottish company formed between 1856 and mid-1895 up to and including 1914. This information was entered on punch cards, but to reduce the vast number of cards that complete coverage would have necessitated, the conventions were employed that marginal additions or subtractions made to the called-up capital (involving changes of less than 2 percent) were either ignored or averaged and that within

these limitations the maximum possible accuracy was to be achieved for December in each year. Even then nearly 9,000 cards were required. The foregoing discussion may be clarified by the tabulation of two illustrative examples (Table 1).

(e) OWNERSHIP AND CONTROL

Since the statutes governing the establishment and conduct of joint stock companies required inter alia the annual submission to the Registrar of lists of shareholders²⁷ and of any changes that took place among the directorate -- the first directors being named in the original Articles of Association²⁸ -- the company files contain a mass of material relating to the ownership and control of the incorporated companies. Although these data have not been entirely ignored -- much information relating to these matters was collected during the examination of the files -- their potential value has not been exploited in this study. To have done so would have involved prodigious labor and postponed the appearance of this exploratory essay. All the various sampling methods considered possessed grave drawbacks. Fearsome statistical difficulties were encountered in any inquiry going beyond the simple counting of heads, and even this relatively simple calculation obscured what appeared to be a widening dispersion of share-ownership which was itself of kaleidoscopic variety. At the present stage of computer technology, it would seem -- given realistic cost constraints -- that valid generalizations concerning the ownership and control of British companies implicit in their files must remain a tantalizing prospect, and that currently these data may

most fruitfully be used in enquires limited to particular years, specific industries, small groups of companies and even individual businesses.

II

THE DEMOGRAPHY OF THE EARLY SCOTTISH JOINT STOCK COMPANIES

Nearly 3000 companies were incorporated in Scotland between 1856 and mid-1895 (2936), or about 6 percent of all companies formed in the United Kingdom during this period (Table 2). Of these, 311 were still in existence in 1960; 2625 had been dissolved (Table 3).

The annual number of companies formed in the United Kingdom and in Scotland before the First World War is presented in Chart I. The periodicity will be immediately apparent. The correspondence between peaks and troughs of company formation and the trade cycle is equally clear when the turning points of the latter²⁹ are superimposed upon the curves. Crude though the annual data are, they suggest that peaks in company formation occurred at or shortly before the upper turning points of the general cycle. Similarly, years characterized by relatively low company formation, tended to be those at or near (generally preceding) the lower turning points. The evidence suggests a high degree of correlation between movements in incorporation and general business activity and tends to confirm the findings of Alfred Marshall and D. H. Macgregor.³⁰ G. H. Evans, following a more rigorous analysis of a much larger American population, came to the same conclusions. He observed "one might almost have

TABLE 1

TWO ILLUSTRATIONS OF CHANGES IN CAPITAL AND SHARES

(a) BT 2/1049 A Burntisland Oil Co. Ltd. (Incorporated, 5 September 1881;
Dissolved, 8 September 1892. Industrial Classification: 326)

Date	Nominal Capital (fs)	Share Denomination (fs)	Capital Called Up (fs)
December 1881	120,000	10.00	61,460
January 1883	120,000	10.00	103,450
December 1885	140,000	10.00	119,450
December 1887	170,000	10.00	144,950
February 1892	170,000	10.00	169,470

(b) BT 2/1003 Prairie Cattle Co. Ltd. (Incorporated, 30 December 1880;
Dissolved, 1 March 1915. Industrial Classification: 914)

Date	Nominal Capital (fs)	Share Denomination (fs)	Capital Called Up (fs)
December 1881	200,000	10.00	50,000
December 1882	200,000	10.00	62,500
December 1883	500,000	10.00	212,212
December 1884	500,000	10.00	250,000
December 1885	600,000	10.00	284,901
December 1888	600,000	10.00	294,055
December 1889	600,000	10.00	378,755
December 1890	600,000	10.00	421,649
December 1892	300,000	5.00	176,930
December 1894	300,000	5.00	205,814
December 1895	300,000	5.00	222,229
December 1899	165,000	2.75	102,919
December 1900	225,000	2.75	135,419
December 1901	165,000	2.75	152,919
December 1903	235,000	1.75	180,855
December 1904	235,000	1.75	190,000
December 1913	235,000	1.75	227,470

TABLE 2

NUMBER OF COMPANIES FORMED
SCOTLAND AND UNITED KINGDOM, 1856 - 1914

Year	(1) Scotland	(2) United Kingdom	(1) (2) %	Year	(1) Scotland	(2) United Kingdom	(1) (2) %
1856	8	230	3.5	1886	93	1785	5.2
1857	23	393	5.9	1887	97	1945	5.0
1858	14	306	4.6	1888	125	2465	5.1
1859	6	331	1.8	1889	137	2658	5.2
1860	15	416	3.6	1890	148	3005	4.9
1861	24	483	5.0	1891	157	2597	6.0
1862	34	512	6.6	1892	164	2505	6.5
1863	31	733	4.2	1893	189	2515	7.5
1864	27	944	2.9	1894	207	2885	7.2
1865	38	973	3.9	1895	261	3805	6.9
1866	38	726	5.2	1896	308	4658	6.6
1867	18	440	4.1	1897	332	5148	6.4
1868	25	425	5.9	1898	392	5065	7.7
1869	19	441	4.3	1899	333	4879	6.8
1870	19	545	3.5	1900	340	4859	7.0
1871	48	741	6.5	1901	211	3358	6.3
1872	85	1020	8.3	1902	254	3850	6.6
1873	63	1165	5.4	1903	264	3992	6.6
1874	66	1157	5.7	1904	248	3765	6.6
1875	48	1104	4.3	1905	289	4253	6.8
1876	69	924	7.5	1906	334	4766	7.0
1877	88	938	9.4	1907	332	5152	6.4
1878	64	815	7.9	1908	272	4932	5.5
1879	65	968	6.7	1909	414	6268	6.6
1880	70	1170	6.0	1910	353	7091	5.0
1881	76	1495	5.1	1911	353	6371	5.5
1882	114	1526	7.5	1912	401	7268	5.5
1883	117	1630	7.2	1913	409	7321	5.5
1884	113	1443	7.8	1914	384	6097	6.3
1885	78	1382	5.6				
				TOTAL	9304	150604	6.2

Source: Total Col. Table 14; Col. 2, 1865-1862, Shannon, "The First Five Thousand", p. 421; 1863-1914, G. H. Evans, Business Incorporations . . . ; p. 35.

TABLE 3

14 c

ANNUAL DISSOLUTIONS OF SCOTTISH COMPANIES (INCLUDING ABORTIVES) INCORPORATED BETWEEN 1856 AND MID-1895 BY MAJOR INDUSTRIAL GROUPS

Year	100 Mining & Quarrying	200-300 Manufacturing	400 Public Utilities	500-600 Trade	700 Service	800 Finance, Insurance, & Real Estate	900 Agriculture, Forestry, & Fishing	Total
1856	-	-	-	-	-	-	-	-
1857	-	-	-	-	-	-	-	-
1858	-	2	4	-	1	1	-	8
1859	-	-	-	1	-	-	-	1
1860	-	2	1	-	-	-	-	3
1861	-	2	1	-	-	-	2	5
1862	1	1	4	-	-	-	-	6
1863	2	3	3	1	-	-	1	10
1864	3	1	6	-	1	3	1	15
1865	3	-	1	-	1	4	1	10
1866	4	3	2	1	-	2	-	12
1867	-	5	1	1	2	2	2	13
1868	-	6	4	-	-	1	1	12
1869	3	2	8	-	-	1	2	16
1870	1	1	1	2	-	1	-	6
1871	1	2	4	1	-	1	-	9
1872	3	6	6	2	-	-	1	18
1873	6	3	2	1	-	-	1	13
1874	5	5	5	2	1	3	-	21
1875	7	7	7	2	3	3	-	29
1876	3	5	10	3	3	3	-	27
1877	5	11	13	4	4	7	3	47
1878	8	13	7	1	4	3	4	40
1879	7	7	10	1	5	7	3	40
1880	6	8	8	1	4	7	1	35
1881	4	10	8	1	3	5	-	31
1882	4	7	6	3	6	12	1	39
1883	9	14	15	3	5	10	3	59
1884	5	12	4	1	9	9	4	44
1885	7	16	7	-	4	6	6	46
1886	5	16	14	3	10	6	2	56
1887	4	15	12	5	9	7	5	57
1888	7	22	7	6	3	12	4	61
1889	4	17	14	2	9	15	3	64
1890	7	21	12	5	8	4	2	59
1891	10	23	13	4	3	12	2	67
1892	9	30	16	2	6	7	2	72
1893	8	31	22	3	6	5	1	76
1894	7	33	17	3	10	14	5	89
1895	10	28	17	2	8	16	3	84

Year	100 Mining & Quarrying	200-300 Manufacturing	400 Public Utilities	500-600 Trade	700 Service	800 Finance, Insurance, & Real Estate	900 Agriculture, Forestry, & Fishing	Total
1896	17	36	18	6	7	8	7	99
1897	6	24	24	2	8	4	5	73
1898	12	28	21	4	7	13	4	89
1899	9	27	18	4	3	3	7	71
1900	3	25	14	-	5	6	3	56
1901	5	13	18	4	7	6	2	55
1902	9	14	13	3	5	5	3	52
1903	5	11	13	-	5	3	-	37
1904	4	15	11	4	4	9	-	47
1905	3	6	9	-	8	3	2	31
1906	2	7	10	-	6	5	1	31
1907	4	10	13	1	4	5	2	39
1908	2	10	12	1	2	9	3	39
1909	3	5	13	1	6	1	2	31
1910	-	6	17	-	3	-	1	27
1911	1	5	9	2	1	2	1	21
1912	2	5	7	-	2	2	3	21
1913	2	2	5	1	1	1	-	12
1914	5	6	11	-	2	2	1	27
1915	2	1	3	1	-	1	2	10
1916	-	6	8	-	-	-	-	14
1917	1	5	15	-	2	2	-	25
1918	1	5	6	-	1	1	1	15
1919	-	2	13	-	2	2	-	19
1920	1	6	7	-	7	4	2	27
1921	-	4	6	1	5	-	-	16
1922	2	8	4	3	1	-	-	18
1923	-	3	5	1	5	2	1	17
1924	-	5	4	-	4	5	-	18
1925	1	3	-	-	1	-	1	6
1926	-	4	6	-	-	-	1	11
1927	-	2	-	1	1	1	-	5
1928	-	4	-	1	1	1	-	7
1929	-	1	1	-	2	-	-	4
1930	-	4	1	-	-	1	1	7
1931-40	3	34	18	3	8	7	1	74
1941-50	6	10	45	4	14	7	1	87
1951-60	12	11	9	1	12	13	2	60
1961-70	-	10	5	-	4	8	-	27
1856-1975	291	773	704	116	284	331	126	2625

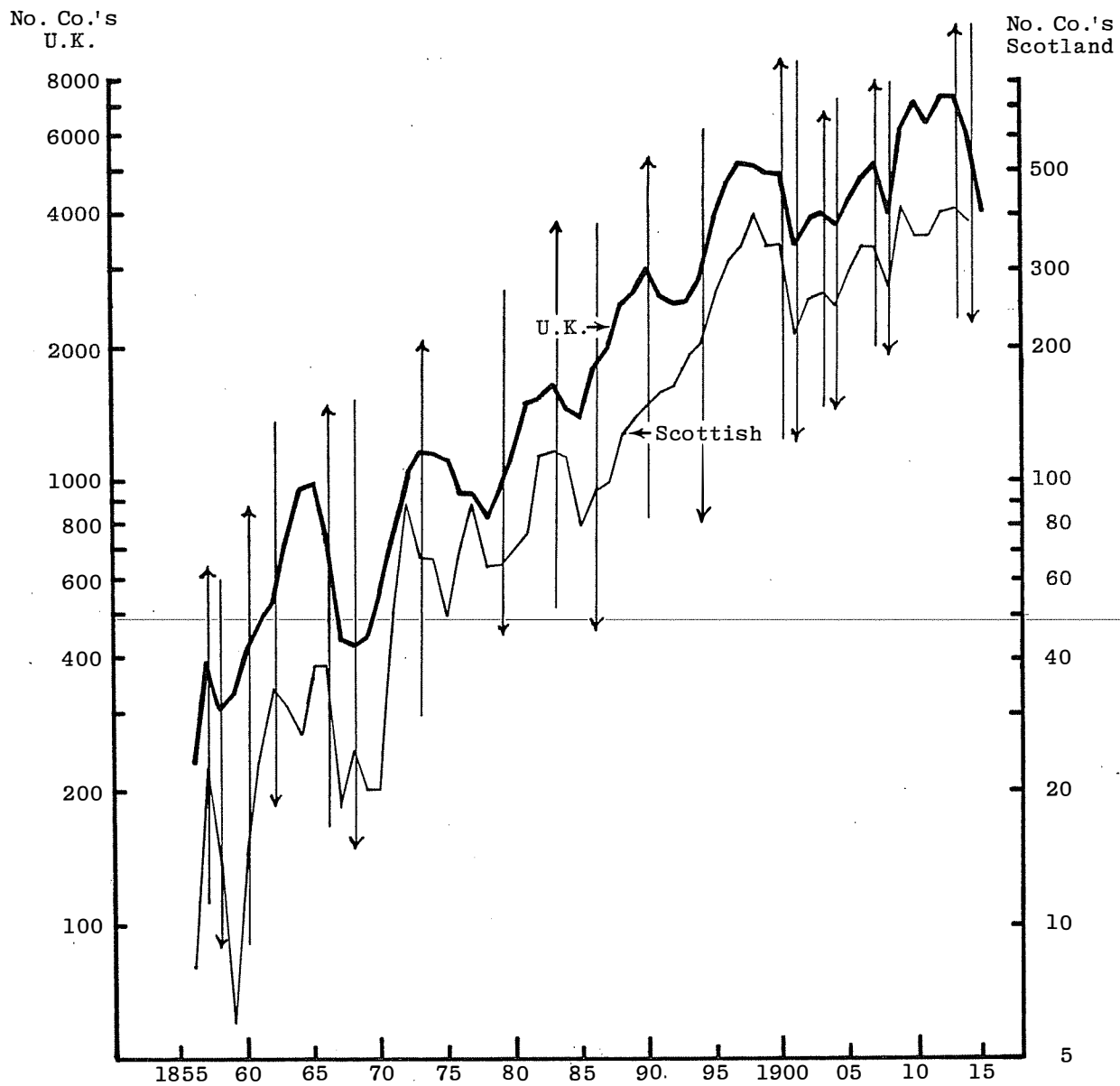


CHART 1: Companies Formed, 1856-1914

a cyclical upturn.

Since nearly half (46 percent) of the early Scottish companies formed between 1856 and 1895 that had been dissolved by 1970 were wound up voluntarily (see Table 4) and an additional 9 percent (Mode of Dissolution Type 5) simply withered away, it is hardly surprising that there is but little coincidence between the pattern of total dissolution and the trade cycle. The very term "voluntary liquidation" implies the possession by the board of at least some latitude in timing the initiation of winding up proceedings. Firms wound up compulsorily had no such powers of maneuver. The courts could wind up any company unable to pay its debts,³⁶ a process usually initiated in the case of the companies examined in this paper by a petition presented by one or more of its creditors. Taking only those Scottish companies wound up compulsorily (Table 3, Mode of Dissolution Type 3) there is a clear inverse relationship between the number of companies dissolved by this method and the general course of business (Chart 2).

It is equally apparent that there is a marked positive correlation between the course of the trade cycle and movements in the series of those companies sold, amalgamated or reconstructed (Mode of Dissolution 2). Clearly, it was easier to sell out and, conversely, to raise the capital necessary to buy out or effect an amalgamation during periods of prosperity. Where the data are available, it is apparent that substantial numbers of the Scottish companies that were sold as "going concerns" were taken over not by firms registered in Edinburgh but by English companies and that the locus of power was transferred from Glasgow, Edinburgh or Dundee to somewhere south of the

border, usually London.

It remains to consider the abortive companies. The 215 companies which can so be described (Table 5) are distributed throughout the period 1856-1895 without any apparent relationship with the trade cycle. The implication is that there were more factors affecting successful birth than those that can be loosely described as "financial". Doubtless, the state of the money market was influential in determining the ability to float a company, but equally important, it might be supposed, were the plausibility of the company's objectives, the degree of competition already existing in its proposed field, and the reputations and known abilities of the signatories to its Memorandum and Articles of Association. There were too a number of random factors: the failure to discover mineral wealth where exploratory surveys initially suggested favorable prospects; the sudden death of the leading promoter; the shipwreck and total loss of a vessel expected to fulfill the hopes of the members of a single-ship company. One thing is noteworthy. Only 7 percent of the Scottish companies formed in the period up to mid-1895 were abortive. This is much less than the comparable figure for companies registered in London. Shannon talks of over 1,200, constituting (with a number of "small" companies) no less than 36 percent of the total London registrations in the decade 1856-1865;³⁷ nearly two thousand, or 31 percent of registrations during 1866-1874; and 3,311, or 35 percent, for the period 1875-1883. "We may say," he commented, "that in the first quarter century or so of limited liability the investor rejected more or less out of hand about one-third of the proposals submitted to him."³⁸ Even in the

TABLE 4

18 a

YEAR AND MOD OF DISSOLUTION OF SCOTTISH JOINT STOCK COMPANIES INCORPORATED BETWEEN 1856 AND MID-1895 AND DISSOLVED BEFORE 1970

Mode of Dissolution	(1)	(2)	(3)	(4)	(5)	Total	Mode of Dissolution	(1)	(2)	(3)	(4)	(5)	Total
Year	Number %	Number %	Number %	Number %	Number %	Number %	Year	Number %	Number %	Number %	Number %	Number %	Number %
1856	- -	- -	- -	- -	- -	- -	1896	1 1.0	29 29.3	11 11.1	49 49.5	9 9.1	99 3.8
1857	- -	- -	- -	- -	- -	- -	1897	- -	15 20.5	16 21.9	36 49.3	6 8.2	73 2.8
1858	1 12.5	- -	1 12.5	5 62.5	1 12.5	8 0.3	1898	1 1.1	24 27.0	10 11.2	44 49.4	10 11.2	89 3.4
1859	- -	- -	1 100.0	- -	- -	1 0.0	1899	- -	23 32.4	10 14.1	32 45.1	6 8.5	71 2.7
1860	1 33.3	- -	- -	1 33.3	1 33.3	3 0.1	1900	1 1.8	13 23.2	7 12.5	30 53.6	5 8.9	56 2.1
1861	2 40.0	- -	- -	3 60.0	- -	5 0.2	1901	- -	10 18.2	11 20.0	26 47.3	8 14.5	55 2.1
1862	3 50.0	- -	- -	2 33.3	1 16.7	6 0.2	1902	- -	5 9.6	7 13.5	32 61.5	8 15.4	52 2.0
1863	2 20.0	- -	2 20.0	5 50.0	1 10.0	10 0.4	1903	- -	7 18.9	10 27.0	18 48.6	2 5.4	37 1.4
1864	7 46.7	1 6.7	1 6.7	5 33.3	1 6.7	15 0.6	1904	- -	10 21.3	8 17.0	25 53.2	4 8.5	47 1.8
1865	5 50.0	- -	- -	3 30.0	2 20.0	10 0.4	1905	- -	3 9.7	6 19.4	19 61.3	3 9.7	31 1.2
1866	4 33.3	2 16.7	- -	6 50.0	- -	12 0.5	1906	- -	6 19.4	5 16.1	19 61.3	1 3.2	31 1.1
1867	2 15.4	- -	1 7.7	4 30.8	6 46.2	13 0.5	1907	- -	9 23.1	10 25.6	20 51.3	- -	39 1.5
1868	- -	2 16.7	1 8.3	9 75.0	- -	12 0.5	1908	- -	3 7.7	15 38.5	12 30.8	9 23.1	39 1.5
1869	2 12.5	- -	2 12.5	10 62.5	2 12.5	16 0.6	1909	- -	10 32.3	5 16.1	12 38.7	4 12.9	31 1.2
1870	- -	1 16.7	- -	4 66.7	1 16.7	6 0.2	1910	- -	2 7.4	4 14.8	19 70.4	2 7.4	27 1.0
1871	4 44.4	1 11.1	- -	4 44.4	- -	9 0.3	1911	- -	3 14.3	2 9.5	14 66.7	2 9.5	21 0.8
1872	6 33.3	- -	1 5.6	10 55.6	1 5.6	18 0.7	1912	- -	1 4.8	2 9.5	14 66.7	4 19.0	21 0.8
1873	5 38.5	1 7.7	2 15.4	4 30.8	1 7.7	13 0.5	1913	- -	3 25.0	1 8.3	8 66.7	- -	12 0.5
1874	9 42.9	1 4.8	1 4.8	10 47.6	- -	21 0.8	1914	- -	7 25.9	6 22.2	11 40.7	3 11.1	27 1.0
1875	3 10.3	6 20.7	5 17.2	14 48.3	1 3.4	29 1.1	1915	- -	1 10.0	- -	8 80.0	1 10.0	10 0.4
1876	5 18.5	4 14.8	3 11.1	13 48.1	2 7.4	27 1.0	1916	- -	1 7.1	1 7.1	11 78.6	1 7.1	14 0.5
1877	9 19.1	11 23.4	4 8.5	20 42.6	3 6.4	47 1.8	1917	- -	5 20.0	- -	19 76.0	1 4.0	25 1.0
1878	8 20.0	3 7.5	6 15.0	18 45.0	5 12.5	40 1.5	1918	- -	2 13.3	2 13.3	10 66.7	1 6.7	15 0.6
1879	9 22.5	2 5.0	11 27.5	11 27.5	7 17.5	40 1.5	1919	- -	4 21.1	1 5.3	12 63.2	2 10.5	19 0.7
1880	4 11.4	8 22.9	10 28.6	7 20.0	6 17.1	35 1.3	1920	- -	4 14.8	- -	23 85.2	- -	27 1.0
1881	4 12.9	3 9.7	14 45.2	7 22.6	3 9.7	31 1.2	1921	- -	3 18.8	3 18.8	9 56.3	1 6.3	16 0.6
1882	9 23.1	8 20.5	10 25.6	9 23.1	3 7.7	39 1.5	1922	- -	5 27.8	- -	13 72.2	- -	18 0.7
1883	9 15.3	11 18.6	14 23.7	19 32.2	6 10.2	59 2.3	1923	- -	4 23.5	4 23.5	9 52.9	- -	17 0.6
1884	9 20.5	7 15.9	13 29.5	14 31.8	1 2.3	44 1.7	1924	- -	1 5.6	2 11.1	13 72.2	2 11.1	18 0.7
1885	5 10.9	7 15.2	12 26.1	15 32.6	7 15.2	46 1.8	1925	- -	2 33.3	- -	4 66.7	- -	6 0.2
1886	10 17.9	9 16.1	19 33.9	15 26.8	3 5.4	56 2.1	1926	- -	4 36.4	3 27.3	4 36.4	- -	11 0.4
1887	7 12.3	5 8.8	10 17.5	28 49.1	7 12.3	57 2.2	1927	- -	2 40.0	2 40.0	1 20.0	- -	5 0.2
1888	9 14.8	8 13.1	17 27.9	24 39.3	3 4.9	61 2.3	1928	- -	- -	3 42.9	3 42.9	1 14.3	7 0.3
1889	8 12.5	10 15.6	18 28.1	18 28.1	10 15.6	64 2.4	1929	- -	1 25.0	- -	2 50.0	1 25.0	4 0.2
1890	3 5.1	15 25.4	13 22.0	25 42.4	3 5.1	59 2.3	1930	- -	1 14.3	1 14.3	5 71.4	- -	7 0.3
1891	5 7.5	13 19.4	18 26.9	21 31.4	10 14.9	67 2.6	1931-1940	- -	18 24.3	19 25.7	34 45.9	3 4.0	74 2.8
1892	9 12.5	8 11.1	23 31.9	30 41.7	2 2.8	72 2.7	1941-1950	- -	46* 52.9	4 4.6	34 39.1	3 3.4	87 3.3
1893	11 14.5	6 7.9	28 36.8	27 35.5	4 5.3	76 2.9	1951-1960	- -	8 13.1	7 11.5	38 64.0	7 11.7	60 2.3
1894	15 10.9	5 5.6	27 30.3	35 39.3	7 7.9	89 3.4	1961-1970	- -	8 29.6	1 3.7	15 55.6	3 11.1	27 1.0
1895	8 9.5	10 11.9	17 20.2	43 51.2	6 7.1	84 3.2	1856-1970	215 8.2	471 17.9	504 19.2	1206 46.0	229 8.7	2625 100.0

*Note: Includes 29 Gas Companies nationalized under the Gas Act, 1948 and the Gas Vesting Date Order, 1949.

No. of
Cases

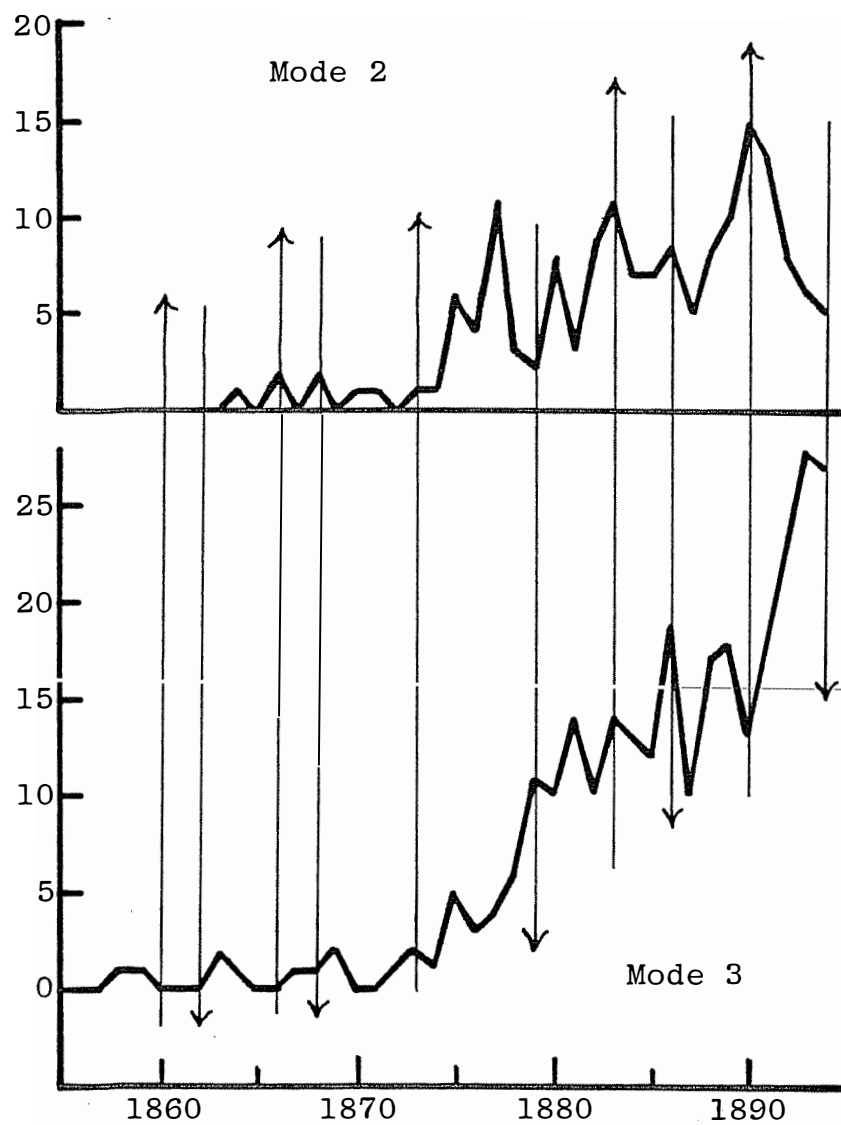


CHART 2: Annual Dissolutions of Scottish
Companies by Mode 2 and Mode 3, 1856-1894

TABLE 5
AN INDUSTRIAL CLASSIFICATION OF (ABORTIVE) SCOTTISH JOINT COMPANIES
INCORPORATED BETWEEN 1856 AND 1895, BY MAJOR INDUSTRIAL GROUPS

Year	Mining & Quarrying 100	Manufacturing 200-300	Public Utilities 400	Trade 500-600	Service 700	Finance, Insurance, & Real Estate 800	Agriculture, Forestry, & Fishing 900	Total
1856	-	-	-	-	-	-	-	-
1857	-	-	-	-	-	-	-	-
1858	-	1	-	-	-	-	-	1
1859	-	-	-	-	-	-	-	-
1860	-	-	1	-	-	-	-	1
1861	1	1	1	-	-	-	-	3
1862	1	-	3	-	-	-	-	4
1863	-	-	1	-	-	-	-	1
1864	-	-	4	-	1	1	-	6
1865	-	-	1	-	-	3	1	5
1866	1	2	-	1	-	-	-	4
1867	-	1	-	1	-	-	-	2
1868	-	-	1	-	-	-	-	1
1869	-	-	1	-	-	-	-	1
1870	-	-	-	-	-	-	-	-
1871	-	1	2	1	1	-	-	5
1872	2	3	3	1	1	-	-	10
1873	3	-	2	-	-	-	-	5
1874	1	3	2	-	1	3	-	10
1875	1	-	-	-	-	-	-	1
1876	-	2	-	1	-	1	-	4
1877	-	2	2	2	-	2	-	8
1878	-	2	2	-	2	2	-	8
1879	-	3	3	-	1	2	-	9
1880	-	-	2	1	2	2	-	7
1881	-	1	-	-	-	3	-	4
1882	-	3	1	-	3	3	-	10
1883	1	4	2	1	2	1	1	12
1884	-	2	1	-	2	2	-	7
1885	-	5	1	-	1	-	-	7
1886	2	-	1	-	3	1	-	7
1887	-	2	2	1	-	-	-	5
1888	-	1	1	2	1	3	1	9
1889	1	3	-	-	1	3	1	9
1890	-	2	-	-	-	-	-	2
1891	-	2	-	2	-	1	-	5
1892	1	8	-	1	1	-	-	11
1893	-	4	4	-	1	3	-	12
1894	1	4	-	1	3	4	-	13
1895	1	3	1	0	1	-	-	6
Total*	17(1)	65(1)	45(2)	16(3)	28	40(9)	4(2)	215(24)
%	7.9	30.2	20.9	7.4	13.0	18.6	1.9	100.0(11.2)

* Figures in brackets show the number of companies primarily or solely intended to engage in overseas enterprise.

'eighties, Macgregor found that about a quarter of all companies were abortive.³⁹

Some part of the difference between the London and Edinburgh registrations is undoubtedly due to the tighter definition of abortiveness adopted in this paper. For example, it is probably that some of Shannon's abortive companies (which are nowhere properly defined) would under my definition, be deemed effectively formed, albeit to enjoy only a short life on a small called up capital. But this can be only a partial explanation, and perhaps not even a very important one. It is not impossible that the standard of commercial morality was higher in Scotland -- certainly, there is little evidence of that brigandage or speculation in names detected by Shannon. Moreover, long before the legal changes of 1844 and 1855, Scots law had permitted joint stock enterprise for ordinary trading and manufacturing purposes that had been virtually prohibited to the English.⁴⁰ Largely because of the tolerant and liberal attitude adopted by the law in Scotland towards unincorporated concerns, the Scots had long enjoyed an acquaintance with business enterprise conducted with the aid of a form of organization the later introduction of which to England apparently gave rise to fraud and misrepresentation. This familiarity may have made the potential Scottish investor more canny than his English counterpart and inhibited the activities of unscrupulous or inefficient company promoters. However, the statistics permit a diametrically opposite interpretation. An increase in the proportion of abortive companies in England between 1856 and 1865 suggested to Shannon that the rise might have been "due to greater caution among

investors in taking up shares."⁴¹ That is, to him a greater relative number of abortives might have been evidence of increasing care and calculation on the part of the investing public. It is improbable (for reasons set out later in this paper)⁴² that such an explanation is plausible in the Scottish case.

Abortive companies were spread over every major field of activity. Only among the "Trade" and "Financial, Insurance and Real Estate" groups did they represent much more than 10 percent of the promotions (compare Table 4 and Table 14). In "Agriculture, Forestry and Fishing" they were barely 3 percent, and in "Manufacturing" which, by its miscellaneous and often technical nature, might have been expected to have presented the greatest opportunities for dishonesty, only 8.4 percent.

With a relatively low abortion rate and a growing number of annual registrations, the only factor which could prevent an increasing number of companies in existence was a low life expectancy. Since even those Scottish companies that had been dissolved by 1970 had an average length of life of 16.4 years (see Table 23), this condition did not apply. The result was that the number of Scottish firms in existence rose from eight in 1856 to 54 at the end of 1860, thence to 206 by December 1868. This figure almost doubled during the course of the boom years of the early 'seventies and had quadrupled by the end of the prosperous years of early 'eighties, only to double again by mid-1895 (see Chart 3). Although the latter part of this trend is similar to Todd's estimates for the United Kingdom as a whole,⁴³ it is probable that until the mid-eighties the rate of

TABLE 6
NUMBER OF SCOTTISH COMPANIES IN EXISTENCE
YEAR END, 1856-1895

Year End	Number of Companies in Existence	Year End	Number of Companies in Existence
1856	8	1876	486
1857	31	1877	527
1858	37	1878	551
1859	42	1879	576
1860	54	1880	611
1861	73	1881	656
1862	101	1882	731
1863	122	1883	789
1864	134	1884	858
1865	162	1885	889
1866	188	1886	926
1867	193	1887	966
1868	206	1888	1030
1869	210	1889	1103
1870	224	1890	1192
1871	256	1891	1282
1872	328	1892	1374
1873	381	1893	1487
1874	425	1894	1606
1875	444	1895*	1755

*Estimated

No. Co.'s

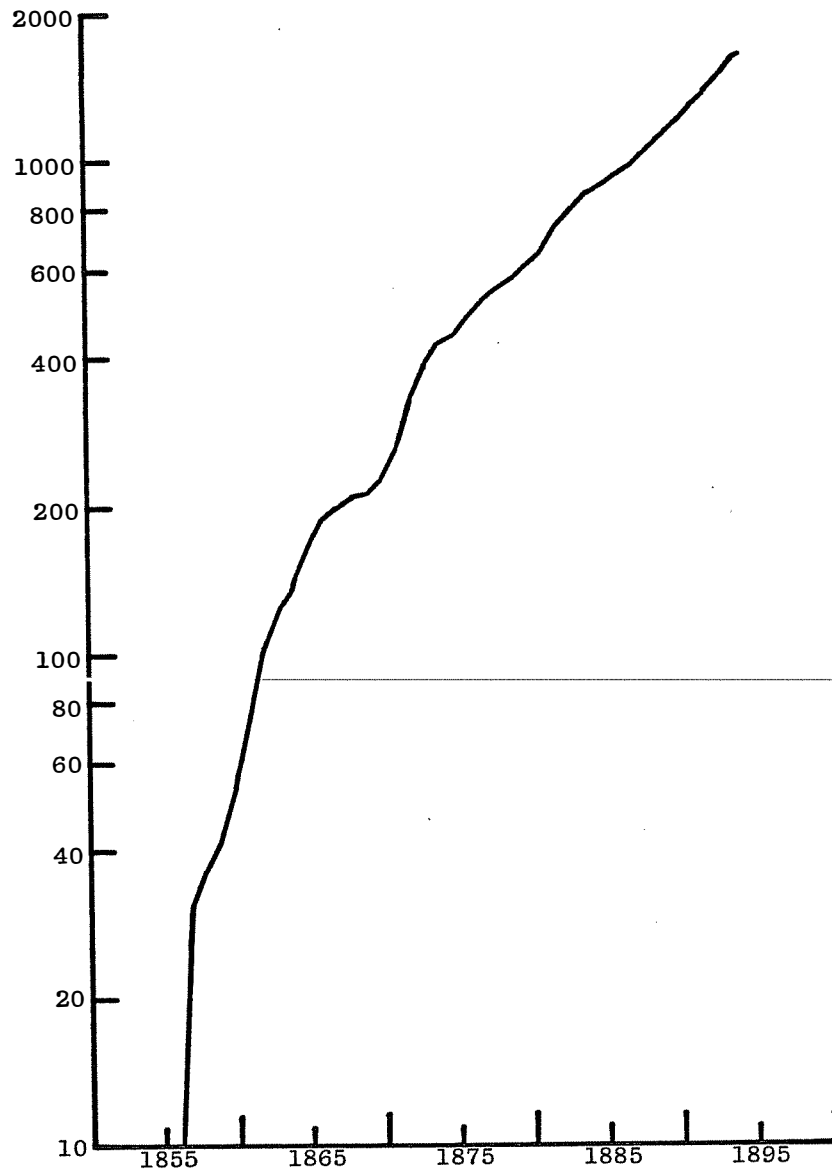


CHART 3: Number of Scottish Joint Stock Companies
in Existence at Year-End, 1856-1894

increase in the number of Scottish companies in existence was greater than that for English companies.⁴⁴ Certainly, it would appear that the average length of life of the early Scottish companies (i.e., those incorporated before, say, the early 'eighties) was considerably higher than that of the English companies. Even with the inclusion of abortive companies (whose lives have been determined as anything from still-birth -- zero -- to a few months) and the exclusion of companies still in existence in 1960, the average length of life of Scottish companies incorporated in any year before 1883 was only once (1856) less than thirteen years (see Table 7). Admittedly, the use of the mean figure conceals a wide distribution. Many companies enjoyed only a brief existence, but what might be called the actuarial statistics for Scottish companies create a different impression from those drawn from early English experience. However disturbing the infantile mortality of Scottish companies may have been, it was manifestly lower than that of English companies. Levi's estimate of the average life of an English company in 1865 was 18 months.⁴⁵ This is patently misleading, but even Shannon's careful calculations reveal that of 2004 English companies in existence in 1865 something over a quarter (27.7 percent) and well over one half (54.3 percent) had died within 3 and 9 years, respectively. For Scotland the comparable figures are but 16 percent and 32.7 percent. Alternatively, of those English companies in existence in 1865, only a quarter survived into the early 'nineties, whereas about a quarter of the Scottish companies of 1865 were still in existence on the eve of the First World War.⁴⁶ The full data are presented in Table 8 and Chart 4.⁴⁷

Shannon found that "from 1865 to 1886 the data of [survival of] home companies [fitted], with surprising exactness, a Pareto curve to the equation,

$$y = 1996. x^{-.65897}$$

and from 1886 to 1910 follow, with a slight fall-off in fit, a second Pareto curve to the equation,

$$y = 4677. x^{-1.0685} \text{ } ^{48}$$

In an attempt⁴⁹ to compare Shannon's findings with the Scottish data, a curve was fitted to figures recovered from his graph of survival for "home, foreign and colonial companies." For the period 1865-1886, this produced an equation

$$F = 2097. t^{-.60506} \\ (0.03)$$

$$r^2 = 0.99$$

$$D.W. = 1.79$$

where F is the number of firms and t is time, and, for the period 1886-1928,

$$F = 5291. t^{-1.0563}$$

$$r^2 = 0.99$$

$$D.W. = 1.51$$

Scottish data for all companies for the same periods fitted the following equations:

TABLE 7

AVERAGE LENGTH OF LIFE OF DISSOLVED SCOTTISH
COMPANIES BY YEAR OF BIRTH

Year of Birth	Number of Companies	Average Length of Life	
		Months	Years
1856	7	135.6	11.3
1857	22	233.6	19.5
1858	14	466.2	38.9
1859	5	568.2	47.4
1860	13	227.5	19.0
1861	22	315.2	26.3
1862	33	226.7	18.9
1863	28	178.8	14.9
1864	27	157.7	13.1
1865	36	213.8	17.8
1866	36	225.7	18.8
1867	17	230.0	13.5
1868	25	247.7	20.6
1869	17	330.4	27.5
1870	17	190.7	15.9
1871	43	253.1	21.1
1872	78	171.4	14.3
1873	58	190.5	15.9
1874	59	171.3	14.3
1875	45	225.5	18.8
1876	60	190.0	15.8
1877	78	220.8	18.4
1878	56	160.6	13.4
1879	52	182.5	15.2
1880	66	245.4	20.5
1881	71	224.7	18.7
1882	104	185.0	15.4
1883	105	159.6	13.3
1884	101	212.8	17.7
1885	72	175.2	14.6
1886	90	185.1	15.4
1887	82	221.6	18.5
1888	109	206.3	17.2
1889	122	196.6	16.4
1890	124	194.9	16.3
1891	135	174.3	14.5
1892	148	185.7	15.5
1893	169	186.5	15.5
1894	180	163.9	13.7
1895	99	181.7	15.1

TABLE 8

THE SURVIVAL OF ENGLISH AND SCOTTISH COMPANIES
INCORPORATED BETWEEN 1856 AND 1865

Year End	Number of Companies in Existence		Percentage of Companies Surviving		Year End	Number of Companies in Existence		Percentage of Companies Surviving	
	English	Scottish	English	Scottish		English	Scottish	English	Scottish
1865	2004	162	100.0	100.0	1901	345	50	17.2	30.9
1866		154		95.1	1902		49		30.2
1867		143		88.3	1903		49		30.2
1868	1449	136	72.3	84.0	1904	315	49	15.7	30.2
1869		124		76.5	1905		47		29.0
1870		122		75.3	1906		46		28.4
1871	1101	120	54.9	74.1	1907	300	43	15.0	26.5
1872		114		70.4	1908		40		24.7
1873		113		69.8	1909		40		24.7
1874	915	109	45.7	67.3	1910	285	40	14.2	24.7
1875		105		64.8	1911		40		24.7
1876		102		63.0	1912		40		24.7
1877	795	97	39.7	59.9	1913	260	39	13.0	24.1
1878		89		54.9	1914		38		23.5
1879		87		53.7	1915		38		23.5
1880	710	85	35.4	52.5	1916	255	38	12.7	23.5
1881		84		51.9	1917		37		22.8
1882		78		48.1	1918		36		22.2
1883	640	72	31.9	44.4	1919	250	35	12.5	21.6
1884		72		44.4	1920		33		20.4
1885		72		44.4	1921		33		20.4
1886	580	70	28.9	43.2	1922	225	31	11.2	19.1
1887		70		43.2	1923		30		18.5
1888		68		42.0	1924		30		18.5
1889	520	67	25.9	41.4	1925	205	30	10.2	18.5
1890		67		41.4	1926		26		16.0
1891		67		41.4	1927		25		15.4
1892	465	67	23.2	41.4	1928	200	24	10.0	14.8
1893		66		40.7	1931		23		14.2
1894		66		40.7	1934		23		14.2
1895	440	64	22.0	39.5	1937		20		12.3
1896		62		38.3	1940	No Data	20	No Data	12.3
1897		61		37.7	1950		15		9.3
1898	385	59	19.2	36.4	1960		13		8.0
1899		56		34.6	1970		13		8.0
1900		55		34.0	1975		13		8.0

Note: The English data has been "recovered" from H. A. Shannon, "The First Five Thousand . . .", Figure 1, p. 405, and may contain minor inaccuracies. The figures are those for "Home, Foreign and Colonial Companies," Graph 1.

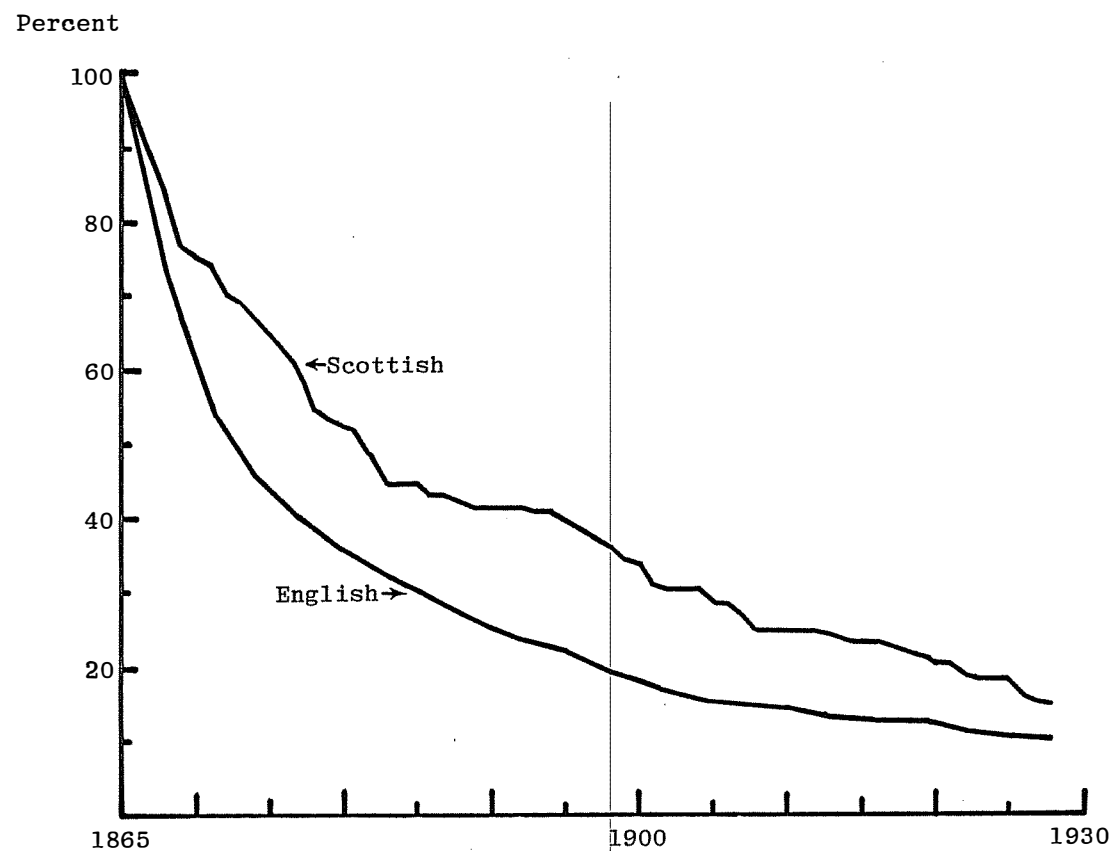


CHART 4: Percentage Survival of English and Scottish Companies Incorporated between 1856 and 1865

For 1865-1886,

$$F = 1956. \quad t = .2968 \quad r^2 = 0.89$$

$$D.W. = .30$$

and for 1886-1928,

$$F = 1755. \quad t = .9870 \quad r^2 = 0.95$$

$$D.W. = 0.20$$

Because minor errors are inevitably introduced when trying to derive values from a graph, no more is claimed from this analysis than that it illustrates the hypotheses that (a) the rate of decay of the early Scottish firms was far slower than for English firms; and (b) from the mid-eighties (that is, from the very time that Shannon's perceives a break in the trend of survival displayed by English firms) the survival trends of Scottish and English in existence in 1865 are very similar.

Graphs of survival of the Scottish firms in existence at the end of 1865, 1875, 1885 and 1894 (Charts 4 and 5), derived from data in Tables 8 and 9, reveal that after a slight fall from 1865 to 1875 (explained by the decreasing proportion of public utility companies) life expectancies had a tendency to increase with the passage of years. After ten years, 58.8, 62.5 and 62.5 percent of all Scottish companies in existence at the end of 1875, 1885 and 1894, respectively, were still active; after twenty-five years the proportions were 37.8, 38.8 and 41.2 percent; after fifty years, the proportions were 21.4,

25.9 and 27.7 percent. By 1970, 11.0, 15.4 and 18.4 percent of all companies in existence at the end of 1875, 1885 and 1894 remained in operation in their original form, despite the relatively heavy mortality occasioned by nationalization in the late 1940's. Furthermore, not all of the Scottish companies that were dissolved passed entirely out of existence. Of the 2157 companies incorporated between 1856 to mid-1895 which had been wound up by the end of 1914, just over 16 percent (351) had been dissolved for sale, reconstruction and amalgamation (Table 4, Mode of Dissolution Type 2, and Table 10). Of these, something over one half, or about 10 percent of all dissolutions, were as a consequence of sale to or merger with existing companies (many of them incorporated in England), approximately double the proportion that Macgregor found for the London registrations of 1880.⁵⁰

With the exception of Macgregor's analysis of the survival of English companies incorporated in 1880,⁵¹ no strictly comparable figures for England exist. Of these 1162 companies Macgregor omitted from consideration, 54 wound up for amalgamation, five transferred to public authorities, and 27 for which there was inadequate information. Taking only those 780 English companies "effectively formed" (i.e., omitting 296 abortive companies), and using Macgregor's form of tabulation and methods (i.e., omitting abortives and companies dissolved for the purpose of amalgamation) to treat the 70 Scottish firms incorporated 1880, produces the following survival statistics (Table 11). These data simply confirm the greater longevity of the early Scottish companies, but on the basis of Todd's estimates one would guess that after the mid-eighties the survival trends of English

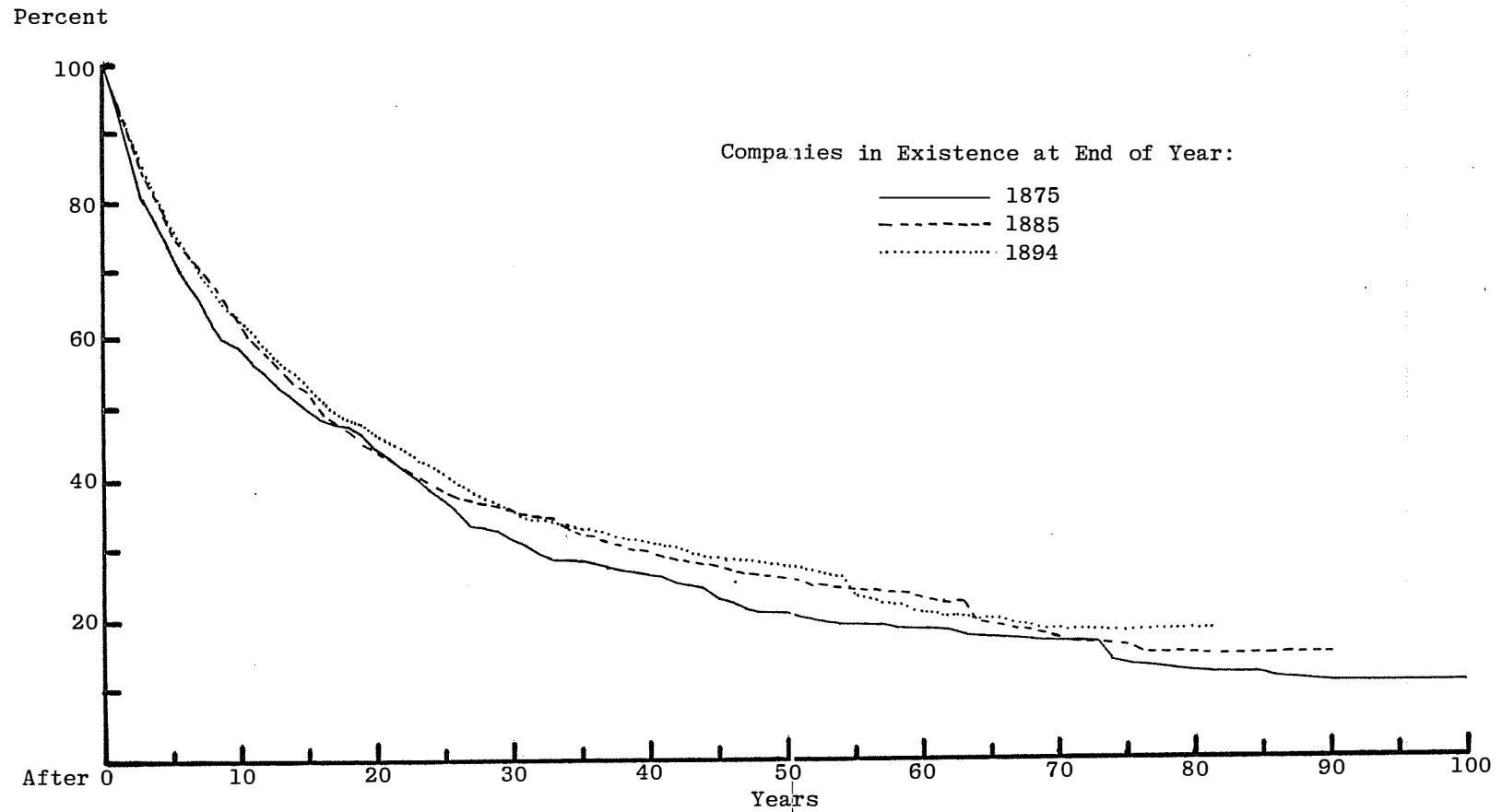


CHART 5: Percentage Survival of Scottish Companies in Existence at End of Years 1875, 1885 and 1894

TABLE 10

AN INDUSTRIAL CLASSIFICATION OF SCOTTISH COMPANIES WHICH
WERE DISSOLVED BEFORE 1914 BY BEING "SOLD, AMALGAMATED
OR RECONSTRUCTED"* BY MAJOR INDUSTRIAL GROUPS

Industrial Classification Number	Brief Description	Number of Companies	Proportion of Total
100	Mining and Quarrying	40	11.7
200-300	Manufacturing	125	36.4
400	Public Utilities	78	22.7
500-600	Trade	16	4.7
700	Service	25	7.3
800	Finance, Insurance and Real Estate	51	14.9
900	Agriculture, Forestry and Fishing	8	2.3
Total		343	100.0

*Mode of dissolution Type 2

TABLE 11

SURVIVAL OF ENGLISH AND SCOTTISH COMPANIES FORMED IN 1880

Period	Number of Companies		Percentage Survival of Companies	
	English (780)	Scottish (56)	English	Scottish
1 year	720	55	92	98
2 years	636	54	82	96
5 years	456	44	58	79
10 years	333	34	43	61
20 years	233	25	30	45
30 years	173	19	22	34
40 years	145	15	19	27
49 years	126	13	16	23

Source of English data: D. H. Macgregor, "Joint Stock Companies. . .", pp. 493-95. Of the 70 Scottish companies incorporated in 1880, 7 were abortive and 7 were dissolved for amalgamation.

companies were becoming increasingly similar to that of the Scottish companies; that three decades of intensive experience with the joint-stock limited liability form of business organization had placed English promoters, directors and investors on a footing more nearly equal to their initially more knowledgeable and prudent counterparts north of the border.

But is there more to explaining the greater stability of the early Scottish joint-stock companies than simply the Scots' greater familiarity with this organizational form? Todd argues that not until the limitation of liability became effective, that is, not until the proportion of uncalled capital was significantly reduced, was "a better and more efficient class of entrepreneurs" encouraged "to enter industry" with a resultant rise in the standard of commercial morality and decrease in fraud.⁵² If this argument is sound, it would partially explain the increasing longevity of English companies during the course of the century. But all those hypotheses that are dependent on presumed changes in the ratio of called to nominal capital have hitherto rested upon very tenuous data. It is not enough to cite Griffen's observation that "since 1866 there have been few companies with large amounts of uncalled capital, the special evil of the pre-1866 period,"⁵³ when the Parliamentary Returns reveal that in only three years between 1866 and 1882 did the total paid-up capital of companies in the Registrar's sample exceed 30 percent of their nominal capital.⁵⁴ That the official returns -- vitiated as they were by the inclusion of large numbers of abortive companies which until 1880 the Registrar was unable to remove, and dependent for their

compilation upon oftentimes dubious information supplied by companies -- are unreliable is recognised, but they do indicate that the effective limitation of liability occurred much later than is usually supposed. After the first seven years of the operation of the Act of 1856 in Scotland, the proportion of called-up to nominal capital of all active companies registered in Edinburgh before 1895, never exceeded 50 percent, though a strong upward tendency in this ratio is apparent from the early 'eighties (see Table 12).

Until more empirical studies have been undertaken into the London registrations, the stability of English companies will remain obscure. Much remains to be done with the data available at West Register House, Edinburgh, but if the effort already expended may be held to justify further speculation, it is possible that the relatively low Scottish abortion rate, the longer lives of companies registered in Edinburgh, and the apparently higher standards of commercial morality extant in late nineteenth century Scotland, might be explained in terms of the more intimate nature of the Scottish financial scene. London's money market approached the anonymity postulated by the economist more nearly than those in Scotland. In Edinburgh, Glasgow, Dundee and Aberdeen, promoters, business men and investors were more likely to be acquainted with, not only each other but with the motives and prospects of the companies which jostled for their attention. The same names repeatedly occur among the signatories of the Articles of Association, the occupations of the shareholders frequently indicate some connection with the type of activity proposed in

TABLE 12
CAPITAL OF SCOTTISH JOINT STOCK COMPANIES
IN EXISTENCE AT YEAR END, 1856-1895

Year End	Capital of Companies Dissolved before 1975			All Companies Called Up (fs) (Estimated)
	Nominal (fs)	Called Up (fs)	$\frac{\text{Called Up}}{\text{Nominal}}$ (%)	
1856	554,500	321,410	58.0	321,410
1857	2,293,630	456,629	19.9	488,121
1858	370,080	250,800	67.8	257,767
1859	397,330	256,968	64.7	256,968
1860	476,230	294,605	61.9	300,743
1861	573,450	330,106	57.6	370,734
1862	5,932,450	2,966,046	50.0	3,221,190
1863	6,921,370	3,445,518	49.8	3,786,965
1864	8,246,158	3,616,117	43.9	4,004,625
1865	11,324,072	4,243,337	37.5	4,644,734
1866	15,365,685	4,839,272	31.5	5,289,437
1867	15,855,897	5,112,836	32.2	5,638,727
1868	16,360,190	6,108,225	37.3	6,486,053
1869	16,261,607	6,526,118	40.1	7,251,243
1870	16,659,546	6,736,323	40.4	7,507,147
1871	18,035,641	7,231,159	40.1	7,810,872
1872	23,497,972	9,453,833	40.2	10,440,596
1873	26,109,278	11,377,268	43.6	12,600,986
1874	29,699,276	12,820,061	43.2	14,725,746
1875	34,639,725	14,789,733	42.7	16,416,603
1876	36,257,358	15,016,551	41.4	16,972,195
1877	38,059,449	14,727,589	38.7	16,478,640
1878	38,338,301	14,083,659	36.7	15,772,554
1879	38,056,404	13,957,213	36.7	16,575,989
1880	42,096,359	15,279,009	36.3	17,815,791
1881	52,889,509	16,641,587	31.5	19,321,914
1882	73,013,601	20,616,897	28.2	24,036,605
1883	75,617,910	24,034,710	31.8	28,052,347
1884	73,537,263	25,983,668	35.3	30,414,716
1885	74,105,987	27,602,676	37.2	32,501,694
1886	78,341,431	29,183,141	37.3	34,163,829
1887	80,565,703	30,053,829	37.3	35,797,779
1888	85,457,151	32,474,066	38.0	38,623,890
1889	84,026,240	33,426,940	39.8	39,989,062
1890	88,418,806	36,101,510	40.8	43,076,076
1891	81,366,433	34,729,874	42.7	41,963,901
1892	85,115,531	38,188,173	44.9	45,865,865
1893	87,574,694	40,869,177	46.7	49,408,509
1894	91,094,045	43,543,598	47.8	52,738,324
1895	92,094,077	45,602,589	49.5	55,751,635

the company's objectives. Even those who withdraw their nesteggs from the Savings Bank of Glasgow to put them into concerns engaged in cattle-raising or mining half a world away often did so on the basis of advice or information contained in letters from relatives or friends who had previously emigrated to the very areas in which the concerns proposed to operate.⁵⁶ Yet the share denominations of Scottish companies (Table 13) provide little evidence that any real attempt was made to exploit the cupidity of the small man. Whereas over time there is a marked increase in the proportion of English companies offering shares of £1 or less, or from £1 to £5,⁵⁷ in Scotland, throughout the period 1875-1895, the most popular denomination was in the £10+ to £25 range and a significantly higher proportion of total capital was raised north of the border by shares of an even larger denomination. The £1 share made relatively little headway in Scotland except as a means of raising capital for public halls, social clubs, co-operative groups of artisans and small concerns which Shannon, for example, omits for his analysis, though the £1 - 5 share, initially more widely used in Scotland than in England, remained highly important throughout the period under consideration.

Scotland's financial world was apparently tight-knit.

Evidence elsewhere indicates an awareness of plans and projects by members of the commercial and industrial community that is surprisingly well informed and sophisticated.⁵⁸ Small investors may, on occasion, have been gullible, but they were not stupid. Even small savings were moved about to obtain the highest yield⁵⁹ and because many investors earned a living -- few are described as "gentlemen" -- they were perhaps better able to assess the practicability of the schemes put before them

than their English counterparts. Hence promoters, or those seeking to convert partnerships into companies, or those wishing to "work a patent" had to present credible projects to the public. This made for relatively few abortions and a higher ratio of successful flotations than occurred in England. It also made for more stable companies.

The Scots apparently even resisted the urge to invest in dubious projects promoted during periods of unusual optimism. The hypothesis was tested that companies incorporated during periods of cyclical upswing might be less carefully planned than those projected during depression years. It was expected that the former, feverishly spawned during boom conditions, might carry a taint from birth which would make itself manifest in a relatively short life; that during the growing excitement of an upswing the habitual prudence of the Scottish investor might have been swept aside. This idea proved to have no foundation: if anything, companies formed during upswings enjoyed a slightly longer length of life than those incorporated during downswings.⁶⁰

III

FIELDS OF ENTERPRISE

The incorporation of joint stock limited companies under the Act of 1856 got off to a slow start in Scotland. For many years this form of business organization was mainly confined to the public utilities, particularly to the provision of gas, light and water (where several companies represented simple conversions of co-partnerships

TABLE 13

SHARE DENOMINATIONS OF SCOTTISH COMPANIES, 1856-1895

Companies	(1)		(2)		(3)		(4)		(5)		(6)		(7)	
	Up to and Including £1		£1+ - £5		£5+ - £10		£10+ - £25		£25+ - £50		£50+ - £99.99		£100 and Over	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
					-	-	1	14.3	2	28.6	-	-	2	28.6
7	1	14.3	1	14.3	1	3.4	6	20.7	3	10.3	3	10.3	5	17.2
9	1	3.4	10	35.5	5	13.9	5	13.9	2	5.6	2	5.6	4	11.1
16	4	11.1	14	38.9	7	17.9	5	12.8	2	5.1	2	5.1	4	10.3
39	4	10.3	15	38.5	7	14.6	8	16.7	1	2.1	4	8.3	5	10.4
48	4	8.3	19	39.6	12	18.5	9	13.8	2	3.1	4	6.2	5	7.7
65	6	9.2	27	41.5	19	20.4	11	11.8	3	3.2	5	5.4	8	8.6
93	9	9.7	38	40.9	22	19.8	14	12.6	4	3.6	4	3.6	11	9.9
111	10	9.0	46	41.4	22	18.2	20	16.5	4	3.3	4	3.3	14	11.6
21	10	8.3	47	38.8	30	20.3	28	18.9	3	2.0	7	4.7	18	12.2
48	10	6.8	52	35.1	29	16.9	36	20.9	5	2.9	9	5.2	24	14.0
172	11	6.4	58	33.7	33	18.9	34	19.4	6	3.4	9	5.1	24	13.7
175	10	5.7	59	33.7	33	17.0	38	18.6	6	3.1	10	5.2	29	14.9
194	12	6.2	68	35.1	28	14.8	30	15.9	8	4.2	12	6.3	30	15.9
189	11	5.8	70	37.0	29	14.4	30	14.9	9	4.5	14	7.0	33	16.4
201	10	5.0	76	37.8	39	16.5	42	17.7	11	4.6	14	5.9	32	13.5
237	11	4.6	88	37.1	47	15.8	72	24.2	14	4.7	17	5.7	36	12.1
297	13	4.4	98	33.0	56	16.3	91	26.5	15	4.4	16	4.7	43	12.5
344	15	4.4	108	31.4	64	17.3	106	28.6	16	4.3	17	4.6	42	11.4
370	16	4.3	109	29.5	78	19.5	115	28.7	15	3.7	17	4.2	44	11.0
400	16	4.0	115	28.7	86	20.0	131	30.5	18	4.2	16	3.7	45	10.5
430	18	4.2	116	27.0	93	19.7	154	32.7	16	3.4	15	3.2	45	9.6
471	21	4.5	127	27.0	99	20.1	164	33.3	15	3.0	14	2.8	42	8.5
492	24	4.9	134	27.2	93	19.2	161	33.2	17	3.5	14	2.9	39	8.0
485	25	5.2	136	28.0	104	19.8	173	33.0	17	3.2	13	2.5	39	7.4
524	26	5.0	152	29.0	106	18.8	187	33.1	18	3.2	15	2.7	41	7.3
565	29	5.1	169	29.9	123	19.6	214	34.1	17	2.7	18	2.9	43	6.9
627	38	6.1	174	27.8	139	20.6	230	34.0	17	2.5	20	3.0	50	7.4
676	40	5.9	180	26.6	154	21.0	241	32.9	17	2.3	20	2.7	56	7.6
733	46	6.3	199	27.1	163	21.6	240	31.8	18	2.4	21	2.8	59	7.8
755	44	5.8	210	27.8	168	21.2	249	31.5	23	2.9	21	2.7	62	7.8
791	43	5.4	225	28.4	172	21.6	257	31.7	22	2.7	23	2.8	62	7.6
811	44	5.4	231	28.5	174	20.1	273	31.5	22	2.5	24	2.8	69	8.0
866	44	5.1	260	30.0	177	19.2	287	31.1	21	2.3	30	3.3	75	8.1
922	42	4.6	290	31.5	185	18.5	315	31.5	24	2.4	36	3.6	83	8.3
999	45	4.5	311	31.1	195	18.6	329	31.0	26	2.5	41	3.9	96	9.0
1061	49	4.6	325	30.6	200	17.5	367	32.1	28	2.4	44	3.8	107	9.4
1144	53	4.6	345	30.2	206	16.7	402	32.7	27	2.2	51	4.1	118	9.6
1230	52	4.2	374	30.4	221	16.7	419	31.6	25	1.9	59	4.4	129	9.7
1326	53	4.0	420	31.7	222	16.6	429	32.0	24	1.8	59	4.4	128	9.6
1339	50	3.7	427	31.9										

any apparent inconsistencies between the number of companies for which data is provided in this table (all of which had been dissolved by 1970) and the number of companies in existence on the last day of each calendar year (see Table 6) is explained by the fact that data are here provided for every company which enjoyed an existence during some part of the last month of each year.

TABLE 14

AN INDUSTRIAL CLASSIFICATION OF SCOTTISH JOINT STOCK COMPANIES
INCORPORATED BETWEEN 1856 AND MID-1895, BY MAJOR INDUSTRIAL GROUPS

Year	100 Mining & Quarrying	200-300 Manufacturing	400 Public Utilities	500-600 Trade	700 Service	800 Finance, Insurance, & Real Estate	900 Agriculture, Forestry, & Fishing	Total
1856	-	3	5	-	-	-	-	8
1857	1	7	8	3	1	1	2	23
1858	1	2	10	-	1	-	-	14
1859	-	-	5	-	1	-	-	6
1860	3	3	7	-	-	1	1	15
1861	5	5	11	3	-	-	-	24
1862	6	3	14	1	1	7	2	34
1863	3	4	10	-	2	9	3	31
1864	1	4	14	2	2	4	-	27
1865	1	12	13	-	1	5	6	38
1866	3	16	12	3	-	2	2	38
1867	-	2	10	2	2	1	1	18
1868	5	2	10	2	2	3	1	25
1869	1	-	9	1	2	2	4	19
1870	2	3	6	-	2	5	1	19
1871	4	13	17	4	2	6	2	48
1872	18	26	20	4	5	9	3	85
1873	17	16	12	2	7	6	3	63
1874	8	11	16	4	6	17	4	66
1875	6	9	11	4	6	12	-	48
1876	9	15	15	2	6	18	4	69
1877	5	15	17	3	19	27	2	88
1878	4	13	10	3	18	15	1	64
1879	6	9	15	3	15	14	3	65
1880	2	20	12	5	16	12	3	70
1881	7	22	21	2	8	14	2	76
1882	8	24	36	2	8	24	12	114
1883	8	35	32	6	14	14	8	117
1884	10	43	23	4	13	12	8	113
1885	6	24	16	3	7	13	9	78
1886	8	31	19	5	10	15	5	93
1887	7	30	20	9	12	16	3	97
1888	9	41	29	9	13	21	3	125
1889	20	47	35	3	14	15	3	137
1890	17	59	32	7	10	16	7	148
1891	7	65	40	7	21	14	3	157
1892	13	64	38	9	21	13	6	164
1893	21	70	46	10	15	20	7	189
1894	27	65	54	10	24	23	4	207
1895	18	49	20	2	13	9	5	116
Total	297	882	750	139	320	415	133	2,936
%	10.1	30.0	25.6	4.7	10.9	14.1	4.5	100.0

formed earlier in the century⁶¹), and to shipping. A harbinger of later events was the North British Rubber Co., but it was hardly typical. Established in 1857 by American enterprise to exploit Charles Goodyear's Scottish patent for the manufacture of india-rubber,⁶² it was the earliest example of that trans-Atlantic inflow of capital and technological expertise that has so stimulated the Scottish economy in recent years.⁶³ Not until the mid-sixties, and then only as a temporary efflorescence, was there any significant movement into industrial activity. In 1866, following the expiration of James "Paraffin" Young's patent for the process, no fewer than nine companies were floated for the extraction and distillation of mineral oil, but with the exception of Young's own company (itself a successor to a co-partnery formed in 1850)⁶⁴ and the Capeldrae Oil and Coal Co., Ltd., which survived into the late seventies, all had been wound up within a few years. Other branches of manufacturing activity experienced little more than a twinge of the limited urge before the seventies. A few bakery firms, operating with small capitals of £1000 or less, a pottery, a railway carriage and wagon builder, one or two newspaper publishers: the list is short and unimpressive. In mining and quarrying, joint stock ventures under the Act of 1856 initially represented little more than short-lived speculations in copper and silver lead.

A number of banks, already in being under contracts of co-partnery, registered with unlimited liability in 1862.⁶⁵ Among them were the Union Bank, the Aberdeen Town and Country Bank, the ill-fated City of Glasgow Bank, the Caledonian, the North of Scotland

Banking Co., and the Clydesdale. In "Finance, Insurance and Real Estate", they were joined in the following year by a number of insurance companies, the longest lived of which was destined to be the British Legal Life Assurance and Loan Co., but thereafter the group was quiescent until the 'seventies. Only with public utilities did the adoption of the joint stock limited liability form of organization sustain any momentum.

Not until the great boom of the early 'seventies can there be discerned any significant relaxation of the grip of the partnership. Forty-seven companies were incorporated in Scotland in 1871 and 84 in 1872, a two- to three-fold increase over any previous year. Companies involved in coal mining and iron-making led the way.⁶⁶ A need for fixed capital beyond the accumulated wealth of the founders and their successors, many of whom wished to withdraw from active participation in the firms that had been instrumental in creating their princely fortunes, coupled with a desire to reduce their financial responsibilities when the inevitable reaction to the boom set in,⁶⁷ brought about the creation of such limited firms as the Benhar Coal Co., the Lochore and Capledrae Cannel Coal Co., the Rawyards Coal Co., the Fife Coal Co., the Flemington Coal Co., and the Cairntable Gas Coal Co., and, primarily in iron, the Monkland Iron and Coal Co., the Omoa and Cleland Iron and Coal Co., Merry and Cumminghame, William Dixon and the Blochairn Iron Co. Most of these were conversions, the vendors taking a relatively high proportion of the share capital. George Simpson, who sold his colliery interests to the Benhar Coal Co., of which he became managing director, was partially recompensed by having 25 percent of

TABLE 15

SCOTTISH JOINT STOCK COMPANIES (ALL SUBSEQUENTLY DISSOLVED): CALLED UP CAPITAL BY MAJOR INDUSTRIAL CATEGORIES, 1856-1895

30 a

End of Year	Total	Mining and Quarrying (100)		Manufacturing (200-300)		Public Utilities (400)		Trade (500-600)		Service (700)		Finance and Insurance (810-870, 890)		Real Estate (880)		Agriculture, Forestry, and Fishing (900)	
		£000's	%	£000's	%	£000's	%	£000's	%	£000's	%	£000's	%	£000's	%	£000's	%
1856	321,410	-	-	4.2	1.3	317.2	98.7	-	-	-	-	-	-	-	-	-	-
1857	456,629	4.2	0.9	60.8	13.3	360.2	78.8	.9	0.2	2.2	0.5	-	-	-	-	28.4	6.2
1858	250,800	104.9	41.8	62.6	25.0	49.9	19.9	.9	0.4	4.1	1.6	-	-	-	-	28.4	11.3
1859	256,968	104.9	40.8	60.9	23.7	56.6	22.0	.7	0.3	5.4	2.1	-	-	-	-	28.5	11.1
1860	294,605	122.7	41.6	64.4	21.9	70.1	23.8	.7	0.2	7.2	2.4	.1	0.0	-	-	29.3	9.9
1861	330,106	148.4	45.0	86.7	26.3	84.8	25.7	1.2	0.4	8.1	2.5	.1	0.0	-	-	1.0	0.3
1862	2,966,046	187.9	6.3	91.4	3.1	103.8	3.4	1.2	0.0	9.5	0.3	2,566.8	86.5	-	-	5.5	0.2
1863	3,445,518	237.6	6.9	108.4	3.1	104.6	3.0	1.1	0.0	16.1	0.5	2,883.7	83.7	84.3	2.4	9.7	0.3
1864	3,616,117	239.8	6.6	156.9	4.3	362.4	10.0	6.6	0.2	31.0	0.9	2,722.4	75.3	87.5	2.4	9.4	0.3
1865	4,243,337	148.7	3.5	412.7	9.7	486.8	11.5	7.0	0.2	31.7	0.7	2,793.0	65.8	97.8	2.3	265.7	6.3
1866	4,839,273	152.7	3.2	748.4	15.5	524.7	10.8	18.7	0.4	33.5	0.7	2,830.8	58.5	97.8	2.0	336.7	7.0
1867	5,112,836	174.9	3.4	899.2	17.6	590.2	11.5	19.1	0.4	47.5	0.9	2,846.9	55.7	97.8	1.9	341.2	6.7
1868	6,108,225	212.0	3.5	1,004.8	16.5	621.9	10.2	94.8	1.6	68.5	1.1	2,840.7	46.5	97.8	1.6	376.9	6.2
1869	6,526,119	208.8	3.2	921.5	14.1	750.6	11.5	138.1	2.1	79.6	1.2	2,867.5	43.9	119.3	1.8	462.0	7.1
1870	6,736,324	273.1	4.1	999.5	14.8	815.4	12.1	137.0	2.0	85.7	1.3	2,842.0	42.2	119.3	1.8	484.1	7.2
1871	7,231,159	310.3	4.3	1,131.2	15.6	987.5	13.7	158.5	2.2	87.3	1.2	2,850.0	39.1	119.3	1.6	543.9	7.5
1872	9,453,833	1,105.8	11.7	1,964.7	20.8	1,308.0	13.8	166.1	1.8	100.1	1.1	2,896.0	30.6	119.3	1.3	609.6	6.4
1873	11,377,269	1,324.4	11.6	2,881.9	25.3	1,679.5	14.8	268.6	2.4	124.5	1.1	3,084.3	27.1	119.3	1.0	710.6	6.2
1874	12,820,061	1,919.5	15.0	3,169.3	24.7	2,020.2	15.8	385.2	3.0	146.0	1.1	3,177.0	24.8	30.8	0.2	787.9	6.1
1875	14,789,734	2,330.0	15.8	3,952.5	26.7	2,333.1	15.8	448.2	3.0	191.8	1.3	3,386.3	22.9	30.8	0.2	932.8	6.3
1876	15,016,551	2,795.2	18.6	3,777.1	25.2	2,145.5	14.3	356.8	2.4	251.9	1.7	3,498.6	23.3	30.8	0.2	976.6	6.5
1877	14,727,590	3,047.3	20.7	3,977.3	27.0	2,702.1	18.3	361.7	2.4	324.4	2.2	3,724.3	25.3	9.3	0.1	472.6	3.2
1878	14,083,661	3,318.8	23.6	3,547.7	25.2	2,792.3	19.8	416.1	3.0	401.8	2.9	2,947.6	20.9	30.0	0.2	447.7	3.2
1879	13,957,213	2,616.0	18.7	4,154.6	29.8	2,529.8	18.1	451.3	3.2	430.5	3.1	3,043.4	21.8	20.7	0.1	440.6	3.2
1880	15,279,009	2,613.3	17.1	4,636.9	30.3	2,761.3	18.1	484.2	3.2	460.4	3.0	3,300.7	21.6	35.1	0.2	695.3	4.6
1881	16,641,588	1,896.7	11.4	5,853.6	35.2	3,147.5	18.9	490.5	2.9	494.3	3.0	3,445.0	20.7	40.0	0.2	880.4	5.3
1882	20,616,898	2,733.4	13.3	5,834.4	28.3	3,785.4	18.4	434.1	2.1	505.8	2.5	5,034.0	24.4	48.7	0.2	1,836.9	8.9
1883	24,034,712	3,196.9	13.3	6,243.7	26.0	4,615.7	19.2	497.8	2.1	478.9	2.0	5,473.8	22.8	81.7	0.3	3,035.7	12.6
1884	25,983,668	2,831.1	10.9	7,606.7	29.3	5,001.1	19.2	506.4	1.9	467.4	1.8	5,929.4	22.8	81.7	0.3	3,114.8	12.0
1885	27,602,678	3,001.0	10.9	8,369.8	30.3	5,314.5	19.3	529.0	1.9	475.0	1.7	6,080.0	22.0	81.7	0.3	3,308.4	12.0
1886	29,183,142	3,261.6	11.2	9,157.1	31.4	5,710.3	19.6	606.8	2.1	461.6	1.6	6,248.4	21.4	81.0	0.3	3,430.6	11.8
1887	30,053,830	3,211.8	10.7	9,663.1	32.2	5,734.3	19.1	655.2	2.2	457.9	1.5	6,440.4	21.4	81.0	0.3	3,538.6	11.8
1888	32,474,069	3,151.2	9.7	9,958.6	30.7	6,899.4	21.2	998.5	3.1	479.2	1.5	6,689.7	20.6	89.1	0.3	3,949.9	12.2
1889	33,426,943	3,376.8	10.1	10,767.7	32.2	6,971.0	20.9	983.6	2.9	498.6	1.5	6,419.9	19.2	89.1	0.3	3,954.7	11.8
1890	36,101,514	4,179.3	11.6	12,047.2	33.4	7,143.1	19.8	874.4	2.4	523.1	1.4	6,676.7	18.5	91.5	0.3	4,189.3	11.6
1891	34,729,878	4,251.3	12.2	12,118.2	34.9	7,012.6	20.2	992.0	2.9	566.7	1.6	5,167.8	14.9	91.5	0.3	4,143.0	11.9
1892	38,188,176	4,871.4	12.8	13,999.5	36.7	7,620.7	20.0	1,104.4	2.9	594.3	1.6	5,175.6	13.6	91.5	0.2	4,340.0	11.4
1893	40,869,180	5,556.5	13.6	16,971.7	41.5	8,041.4	19.7	1,270.0	3.1	654.6	1.6	4,043.6	9.9	79.6	0.2	3,794.1	9.3
1894	43,543,599	5,756.2	13.2	18,239.3	41.9	8,673.3	19.9	1,400.1	3.2	731.1	1.7	4,446.7	10.2	79.6	0.2	3,652.3	8.4
1895	45,602,591	6,548.5	14.4	19,330.6	42.4	8,739.5	19.2	1,433.2	3.1	833.1	1.8	4,272.3	9.4	92.1	0.2	3,680.7	8.1

Note: Minor inconsistencies in the Table and between this Table and Table 16 are due to rounding and the exclusion of a number of companies the nature of which made it impossible to place them in a single major industrial category.

the firm's nominal capital of £20,000 issued to him in the form of 5000 fully paid £10 shares;⁶⁸ George Willis, a co-partner of Andrew Yeats and Co., the vendors, received £3000 in cash, 1000 fully paid £10 shares and 2000 shares of the same denomination, of which £6 was deemed to have been paid, in the Gartcraig Coal and Fireclay Co.; Thomas Barr, David Ingles Urquhart and High McKinnell, were allotted 2000 £10 shares fully paid (or 40 percent of the nominal capital) in the Cairntable Gas Coal Co., to whom they sold their colliery interests in 1873; William Smith Dixon received £388,000 for the sale of Dixon's Ironworks, over half of which he received in the form of £1000 shares in William Dixon Ltd. W. S. Dixon, grandson of the first William Dixon, the profits of whose collieries had established the family fortune at the turn of the century, wished to devote less attention to the vast and ramified family business created by his vigorous predecessors.⁶⁹ Similarly, James Merry, who with Alexander Cunninghame, was proprietor of the Glengarnock Iron Co. and collieries throughout Lanarkshire, became by far the largest shareholder in Merry and Cunninghame when that company was incorporated in 1872.⁷⁰ As Jeffreys has explained, James Merry's reasons for selling out to a limited company were made quite explicit in the prospectus:

"Mr. Cunninghame died in 1865 . . . the present contract of co-partnery expires in 1879 and Mr. Cunninghame's Trustees who are bound to realise his estate as speedily as possible, must withdraw his capital from the business at the earliest opportunity. Mr. Merry does not feel disposed to add to the large interest which he already holds in the undertaking and as neither of his sons desires to engage in commercial pursuits he prefers gradually to withdraw from active business. It would be almost impossible to find private capitalists to contribute the capital necessary for such an enterprise and it has therefore⁷¹ been resolved to place the present proposal before the public."

Conversions took place elsewhere in the heavy industries. Tod and McGregor, the Partick shipbuilders, went limited in January 1872, the Govan Forge Co., a few days later. The Glasgow Bessemer Steel Co Ltd. took over John M. Rowan's Atlas Works for a purchase price of £40,000, a quarter of which was in the form of 1000 £10 shares. But more important were two new concerns: the Steel Company of Scotland, which was to dominate the Scottish steel industry for more than two decades,⁷³ and the Eglinton Chemical Co., whose works at Irvine were to become part of United Alkali twenty years later.⁷⁴ These latter companies, unlike earlier promotions, represented a significant incursion of the limited into Scotland's economic development. Other new companies, while less powerful, helped to strengthen the diversification of the nation's industrial base and to demonstrate that the limited company was a viable organizational form for a wide range of activities. Among the more interesting and successful were Umpherston and Co., heavy engineers and machine tool makers; the great North of Scotland Granite Co.; the Glasgow and West of Scotland Newspaper Co., whose objective was the printing and publishing of newspapers "advocating Conservative Principles," and whose first directors included Sir William Stirling Maxwell, James Baird and Archibald Orr Ewing; the North British Floor Cloth Co. of Kirkaldy; the Aberdeen Jute Co.; the Guard Bridge Paper Co. whose original board was dominated by distillers, members of the Haig family;⁷⁵ and the Dundee Adrated Water Manufacturing Co. whose directorate included nine spirit dealers seeking, no doubt, either to control a source of admixtures for their whisky or gin or to cover themselves in the unlikely event of

the success of the temperance movement whose vigorous activities was about to give rise to a rash of tea and coffee taverns, limited "public houses" where no alcohol was to be sold,⁷⁶ and to numerous hydropathic establishments, whose menus, cynics observed, were confined to "porridge and prayers."⁷⁷

The incorporation of these companies, relatively modest in terms of their aggregate demand for capital, did little to reduce the growing pressure in Scotland for profitable outlets for savings.⁷⁸ Some relief was afforded by the promotion of numerous substantial concerns whose principle objective was to receive money on deposit and to make advances for the purchase of heritable property,⁷⁹ but it was not enough. The Scots, not for the first time, looked overseas.⁸⁰ Earlier ventures in North America and Australia had been based on large co-partneries. One of the first limiteds was the New Zealand and Australian Land Co.. Organized by James Morton, this company was floated in 1866 with a nominal capital of £2 millions, of which over £1 million had been called up by 1871, the majority of the shares being held by the City of Glasgow Bank.⁸¹ This was but the first of many such joint stock ventures. By 1884, "a writer in Blackwood's Edinburgh Magazine could comment that 'three-fourths of the foreign and colonial investment companies are of Scottish origin. If not actually located in Scotland, they have been hatched by Scotch-men, and work on Scottish models'"⁸² Even before the end of the sixties no less than a quarter of all the capital raised by Scottish limiteds was destined for investment overseas (see Table 16). Some companies were specifically concerned with the exploitation of

mineral resources. The Tharsis Sulphur and Copper Co. and Rio Tinto⁸³ sought to tap the mineral wealth of Spain, the Patara Silver Lead Mining and Smelting Co. that of Peru, and the Glasgow Port Washington Iron and Coal Co. that of Ohio. Canadian copper was to be won by the Huntington Copper and Sulphur Co., the Consolidated Copper Co. of Canada and the Canadian Copper Pyrites and Chemical Co.. Showing considerable discernment, the investing public was not seduced by the impressive array of subscribers to the Articles of Association, nor by the proposed directorate of Consolidated Copper, which was abortive. After checkered careers, the other Canadian companies, both of which were promoted by the Hon. Lucius S. Huntington, M.P., a Montreal politician, were subsequently sold to the Canadian Copper and Sulphur Co. Ltd..⁸⁴ The Harveyhill Copper Co., a lesser Canadian concern with a nominal capital of but £95,000, was judicially wound up within five years of its incorporation, its prospects having proved "entirely elusive", mining had ceased, the banks had "entered into possession of the property and advertised it for sale." The Secretary remarked to the Registrar that he had failed even to induce a sufficient number of members to constitute a quorum to attend the meeting called to authorize winding up the company.

Greater long-term success attended those who promoted and invested in a number of companies whose principal objective was the manufacture of jute and the establishment of coffee plantations in India.⁸⁵ But, infinitely more important than these single-purpose ventures, were the investment trusts which were to channel hundreds of thousands of pounds into American stock market securities and real

TABLE 16

SCOTTISH JOINT STOCK COMPANIES (ALL SUBSEQUENTLY DISSOLVED): OVERSEAS INVESTMENT
BY MAJOR INDUSTRIAL CATEGORIES, 1861-1895

End of Year	Overseas Investment		Mining and Quarrying (100)		Manufacturing (200-300)		Public Utilities (400)		Trade (500-600)		Service (700)		Finance and Insurance (810-870, 890)		Real Estate ² (880)		Agriculture, Forestry, and Fishing (900)	
	£000's	% ¹	£000's	%	£000's	%	£000's	%	£000's	%	£000's	%	£000's	%	£000's	%	£000's	%
1861	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1862	2.6	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	100.0
1863	7.7	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.7	100.0
1864	9.4	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.4	100.0
1865	349.4	0.1	-	-	26.3	7.5	50.7	14.5	-	-	-	-	-	-	10.3	2.9	262.1	75.0
1866	490.0	1.1	-	-	56.3	11.5	50.7	10.3	12.5	2.6	-	-	96.0	19.6	10.3	2.1	264.3	53.9
1867	505.6	1.1	-	-	70.5	13.9	50.7	10.0	12.5	2.5	-	-	96.0	18.9	10.3	2.0	265.5	52.5
1868	1,325.8	21.7	15.0	1.1	84.8	6.4	51.1	3.9	12.5	0.9	20.0	1.5	831.0	62.7	10.3	0.8	301.0	22.7
1869	1,644.9	25.2	15.0	0.9	102.9	6.3	84.1	5.1	17.5	1.1	20.0	1.2	1,020.1	62.0	10.3	0.6	375.4	22.8
1870	1,699.6	25.2	95.0	5.6	114.1	6.7	85.5	5.0	17.5	1.0	20.0	1.2	980.1	57.7	10.3	0.6	377.0	22.2
1871	1,840.6	25.5	108.5	5.9	129.9	7.1	86.6	4.7	17.5	1.0	20.0	1.1	1,043.4	56.7	10.3	0.6	424.3	23.1
1872	2,508.6	26.5	585.4	23.3	93.6	3.7	130.5	5.2	17.5	0.7	20.0	0.8	1,184.1	47.2	10.3	0.4	467.1	18.6
1873	2,927.1	25.7	711.0	24.3	224.0	7.7	189.3	6.5	-	-	20.0	0.7	1,214.9	41.5	10.3	0.4	557.5	19.0
1874	3,264.2	25.5	1,045.0	32.0	168.7	5.2	211.9	6.5	-	-	20.0	0.6	1,237.8	37.9	9.3	0.3	571.5	17.5
1875	3,997.0	27.0	1,360.6	34.0	371.2	9.3	295.0	7.4	-	-	20.0	0.5	1,242.5	31.1	9.3	0.2	698.3	17.5
1876	4,162.2	27.7	1,417.1	34.0	397.3	9.5	297.1	7.1	43.3	1.0	-	-	1,278.2	30.7	9.3	0.2	719.8	17.3
1877	2,897.3	19.7	1,613.4	55.7	397.8	13.7	297.7	10.3	43.3	1.5	-	-	306.3	10.6	9.3	0.3	229.5	7.9
1878	3,244.4	23.0	1,730.6	53.3	397.8	12.3	298.2	9.2	49.0	1.5	-	-	550.3	17.0	9.3	0.3	209.3	6.5
1879	3,181.5	22.8	1,605.7	50.5	408.0	12.8	298.1	9.4	60.5	1.9	-	-	590.0	18.5	-	-	219.2	6.9
1880	3,383.4	22.1	1,161.5	34.3	408.0	12.1	339.5	10.0	68.1	2.0	-	-	889.5	26.3	34.4	1.0	482.4	14.3
1881	3,822.7	23.0	921.1	24.1	467.5	12.2	440.2	11.5	74.8	1.9	-	-	1,212.1	31.7	39.3	1.0	667.8	17.5
1882	5,246.9	25.4	1,189.5	22.7	471.6	9.0	489.5	9.3	28.4	0.5	-	-	1,454.7	27.7	48.0	0.9	1,565.3	29.8
1883	8,371.1	34.8	1,780.3	21.3	471.6	5.6	505.6	6.0	39.2	0.5	-	-	2,757.5	32.9	81.0	1.0	2,735.9	32.7
1884	8,948.0	34.4	1,787.6	20.0	484.4	5.4	514.7	5.7	39.2	0.4	-	-	3,233.9	36.1	81.0	0.9	2,807.2	31.4
1885	9,364.2	33.9	1,850.0	19.8	510.5	5.5	533.8	5.7	39.6	0.4	-	-	3,354.8	35.8	81.0	0.9	2,994.4	32.0
1886	9,707.4	33.3	1,996.8	20.6	591.1	6.1	548.1	5.6	45.0	0.5	-	-	3,250.5	33.5	81.0	0.8	3,195.0	32.9
1887	10,105.4	33.6	1,880.4	18.6	598.5	5.9	664.4	6.6	66.6	0.7	-	-	3,426.6	33.9	81.0	0.8	3,387.9	33.5
1888	11,150.2	34.3	1,847.9	16.6	437.2	3.9	1,337.9	12.0	67.2	0.6	-	-	3,548.0	31.8	89.1	0.8	3,822.9	34.3
1889	10,767.7	32.2	1,971.0	18.3	476.2	4.4	1,080.0	10.0	87.4	0.8	-	-	3,239.5	30.1	89.1	0.8	3,824.5	35.5
1890	11,390.9	31.6	2,215.0	19.4	623.3	5.5	1,080.0	9.5	82.3	0.7	-	-	3,319.0	29.1	89.1	0.7	3,982.2	35.0
1891	11,225.4	32.3	1,916.0	17.1	677.8	6.0	1,091.5	9.7	109.3	1.0	-	-	3,396.8	30.3	89.1	0.8	3,945.0	35.1
1892	11,878.1	31.1	2,006.7	16.9	761.7	6.4	1,375.9	11.6	119.2	1.0	-	-	3,403.6	28.7	89.1	0.8	4,121.8	34.7
1893	10,724.6	26.2	2,043.5	19.1	1,304.0	12.2	1,375.9	12.8	70.9	0.7	-	-	2,278.7	21.2	68.6	0.6	3,583.0	33.4
1894	11,330.7	26.0	2,300.6	20.3	1,329.7	11.7	1,375.9	12.1	62.2	0.5	-	-	2,707.3	23.9	68.6	0.6	3,486.5	30.8
1895	11,799.5	25.9	2,757.5	23.4	1,311.7	11.1	1,383.4	11.7	71.9	0.6	-	-	2,721.7	23.1	68.6	0.6	3,484.7	29.5

¹Proportion of Total Called Up Capital (see Table 15).

²The figures presented in this column show the capital in companies specifically concerned with the acquisition of overseas real estate. Many of the companies involved with "Finance and Insurance" and "Agriculture, Forestry, and Fishing" (e.g., "Ranching Companies") utilized a high proportion of their capital in the acquisition of real estate. See text.

estate during subsequent decades. The earliest of these peculiarly Scottish institutions were the Edinburgh-based Scottish-American Investment Co. and the Dundee-based Scottish American Investment Trust and the Oregon and Washington Trust Investment Co.. These three companies were incorporated in 1873. They were to be followed by many similar concerns, all of them modelled upon organizations pioneered by W. J. Menzies, W. S., of Edinburgh and Robert Fleming of Dundee.⁸⁶

By the mid-seventies, the limited had secured a foothold in almost every branch of economic activity in Scotland. True, there were large areas in which earlier forms of business organizations remained supreme: in foodstuffs, clothing, the products of wood, stone and glass, in non-ferrous metals and major branches of machinery, but future trends were unmistakable. In 1873, the called-up capital of all Edinburgh registered companies exceeded £10 millions; within two decades this figure was to be increased four-fold, the greatest proportionate increase coming in domestic manufacturing and agriculture activities overseas. As Kerr has demonstrated, "the Prairie Cattle Co. Ltd. was the first large-scale joint stock venture by British capital in cattle ranching in Texas." Founded in Edinburgh in 1880, "two years after it began operations it paid a dividend of 19 1/2 percent, followed by a payment to shareholders of almost 28 percent in 1883. The Prairie experience set off the Scottish-American cattle craze."⁸⁷ Within five years, well over £2 million had been called up by the Prairie and those companies that followed its example: the Texas Land and Cattle Co., the Wyoming Cattle Ranch Co., the Western American Cattle Co., the Matador Land and Cattle Co., the Hansford

Land and Cattle Co., the Highland Mexican Land and Live Stock Co., the Montana Sheep and Cattle Co., Chalk Buttes Ranch and Cattle Co., Park Red River Valley Land Co., the Mapleton Farming Co., and Mitchell Inn's Brothers Ltd. Promoters "with ranches in their pockets" flocked to Dundee, Edinburgh, Glasgow, Aberdeen, Inverness and Greenock. Few went away completely empty handed: only the Deer Trail Land and Cattle Co., failed to float. The others, whose directorates boasted such names as the Earl of Airlie, John Guthrie Smith, Sheriff of Aberdeen and Kincardineshire, William Lowson, W. J. Menzies, Thomas Nelson, the publisher, Sir George Warrender of Lochend, Robert Fleming and Archibald Coats, all heavily involved in investment trusts, were successfully started and for a few years, at least, lived up to the promises so invitingly set forth in their prospectuses, though it would be interesting to discover what Sir George Warrender, who was reported to be able to "snuff out" unruly stockholders "in a very polite and decided way,"⁸⁸ told the meeting that voted to wind up the Western American Cattle Co. within a year of its incorporation.

The cattle ranching craze was short-lived. It was over by 1886. Yet so much excitement did it generate -- and so well has it been documented -- that there has been a tendency for it to overshadow more solid developments elsewhere. In the six years (1880-1885) during which £2 million had been poured into lands and cattle in the American West, the aggregate paid-up capital in Scottish companies engaged in manufacturing had risen from £4.6 million to £8.4 million and investments in public utilities had all but doubled to £5.3 million. Steadily, and without fuss, capital in Edinburgh-registered industrials had risen

from 15.5 percent of the whole in 1866 to 31.4 percent by the end of 1886. By the mid-nineties, the proportion was to exceed 40 percent. Much of the capital was tightly held: partnerships in many of the principle mining, iron and steel, shipbuilding and engineering firms were being converted into private companies; so too in brewing, where William Younger and William McEwan adopted the company form, as did J. & P. Coats, the Parsley cotton-thread manufacturers, thereby boosting the capital invested in the manufacturing groups by a massive £1.⁸⁹

But the limited was spreading beyond these spectacular conversions, overwhelmingly important though they were. As Jeffreys has so clearly shown, "for some 'new' and semi-new projects, the company rather than the private partnership was [increasingly] regarded as the most satisfactory method of raising the capital needed."⁹⁰ Several foodstuffs came to be made by limited concerns with initially modest capitals; many small chemical companies and machine shops, frequently established to exploit patents, were floated; a dozen or more companies were created to produce electrical machinery and apparatus; other limiteds made bicycles, photographic equipment and scientific instruments. Only clothing and apparel and carpets resisted the tide.

The limited form had quickly been adopted in shipping: no less than four of the eight Scottish companies formed in 1856 were engaged in coastal and ocean shipping and there followed a steady trickle of conversions and new projects, including the Albion Shipping Co., the Irrawaddy Flotilla and Burmese Steam Navigation Co.,⁹¹ the State Line;⁹² the British and African Steam Navigation Co., which went

limited in 1883 after fourteen years of successful existence as a simple joint stock company, the Greenock Steamship Co., and the Aberdeen and Glasgow Steam Shipping Co., which in 1886 followed "the example of other companies" and successfully petitioned for a reduction of capital "due to the unprecedented fall in the value of shipping." Some part of this fall was undoubtedly stemmed from the contemporary mania in single-ship companies. Originated in Liverpool in 1878,⁹³ the incorporation of limited liability companies owning but one ship spread rapidly. This was partly a response to technological changes (iron-hulled ships with compound engines were more expensive than wooden sailing vessels, thus making the old 64th system unwieldy and inadequate) and partly a consequence of the desire to avoid or escape undue risk. As Jefferys explains: "the great advantage to ship owners of the limited liability system was that in the event of an accident involving a compensatory action by another ship owner, the amount that could be paid was limited. If the 'limited liability' ship had been responsible for the collision but in this collision it had been sunk, then the owners of the other vessel could get no compensation at all unless the limited ship in question was only one of a fleet of ships owned by the same company. This was why "the conversion of a line of steamers into so many 'single ship companies' became so common in the 'eighties,"⁹⁴ and why the ownership of so many new vessels came to be organized in a similar manner.

Between 1881 and mid-1895 no less than 251 single ship companies were incorporated in Edinburgh. Their aggregate called-up capital had reached almost £3 million by the latter date (see Table 17),

TABLE 17

SCOTTISH "SINGLE SHIP COMPANIES" NUMBER FORMED,
NUMBER IN EXISTENCE AND CAPITAL CALLED UP

	1881	1882	1883	1884	1885	1886	1887	1888
Number Formed	7	15	18	8	6	6	9	17
Number Dissolved	0	0	2	2	0	8	6	3
Number in Existence at Year End	7	22	38	44	50	48	51	65
Capital Called up at Year End (£1000's)	98.8	377.6	671.0	748.5	788.3	827.1	897.3	1,096
Average Capital per Company (£000's)	14.1	17.2	17.7	17.0	15.8	17.2	17.6	16.9
Proportion of Total Capital in Scottish Co's (%)	0.6	1.8	2.8	2.9	2.9	2.8	3.0	3.4
	1889	1890	1891	1892	1893	1894	1895*	
Number Formed	22	18	27	29	26	32	11	
Number Dissolved	5	6	3	9	14	9	7	
Number in Existence at Year End	82	94	118	138	150	173	177	
Capital Called up at Year End (£000's)	1,349.9	1,597.4	2,064.3	2,359.0	2,464.2	2,899.4	2,905.4	
Average Capital per Company (£000's)	16.5	17.0	17.5	17.1	16.4	16.8	16.4	
Proportion of Total Capital in Scottish Co's (%)	4.0	4.4	5.9	6.2	6.0	6.7	6.4	

*The figures for 1895 are for only the first six months of the year

a figure which represented over 6 percent of the capital invested in all Scottish companies in the early nineties. Owned by an ever-changing kaleidoscope of shareholders among whom frequently figured one or more representatives of the yards responsible for building the vessels, the majority of these ships were managed by a relatively small group of partnerships. Among the more prominent of these ship brokers were Wright and Breakenridge, James Little and Co., Bell Brothers and M'Lelland, Maclay and M'Intyre, Thomson, Dickie and Co. and J. D. and C. W. Clink, all of whom managed at least six vessels. The greatest of the managing partnerships was Maclay and M'Intyre, whose interests are shown in Table 18, but the others were hardly less powerful. Ship-owning was still a preserve for gentlemen. The denomination of shares was rarely less than £100 and they were taken up by leading industrialists and financiers. Anxious, no doubt, to secure some leverage in the means whereby many of their raw materials were conveyed to Scotland and their finished products exported throughout the world, they were not averse to a little potentially lucrative speculation. Besides, membership of a single-ship company may have helped to cement connections. In the closing years of the nineteenth century, ships were becoming highly complex, dependent for their construction and fitting out on the assembly of an ever-widening range of components, the acquisition of which was dependent upon intricate credit relationships. It is difficult to imagine that no commercial spin-off resulted from these associations of iron masters, steel makers, marine engineers, ship builders, marine insurance brokers and bank directors.

Everywhere it was the same. Because the most important companies were mainly conversions, their direction and management -- such was the high proportion of the share capital allotted to the vendors -- remained in the hands of those who had controlled the former partnerships.⁹⁵ Nevertheless, the greater flexibility and infinitely greater security of the limited liability form of business organization was instrumental in consolidating, enhancing and diversifying the power of a relatively small group of men to whom W. H. Marwick first drew attention over forty years ago.⁹⁶ Scotland had its own economic aristocracy, and if some of its members, like Sir Charles Tennent, went on "to greater things" in the metropolis and in international big business,⁹⁷ there were others scrambling to take their places. The catholicity of some directors and major shareholders was remarkable: their names are to be found in the company files of leading concerns in mining, the heavy industries, transport, banking, property and real estate and many branches of overseas enterprise. Many of them, men such as Thomas Aitken of Nivingston, Henry Birkmyre, Archibald Coats, Peter McLagan of Pumpherston, James Morton, James S. Napier and Thomas Reid, deserve further study. Here it is sufficient to note the interlocking of interests that was facilitated (not created, for such a phenomenon dates back to the days of the partnership) by the advent of the limited company which had come to dominate almost every branch of Scotland's economy by the end of the nineteenth century.

TABLE 18 (continued)

Reg. No. BT2/	Name of Steamship Company	Date of Incorporation	Nominal Capital (£s)	Maximum Called-up Capital (£s)	Date of Dissolution ¹	Notable Subscribers and Shareholders ²	Vessel Built (B) or Purchased	Management	Remuneration	
								Salary (£s Per Annum)	Share of Net Profits	
2397	Cartagena ⁷	November 1892	14,000	14,000	April 1894	James McMurray	Purchased	200	10%	
2487	Rowena (of Glasgow) ⁸	April 1893	9,600	-	February 1894		Purchased	200	10%	
2488	Ivanhoe ⁹	April 1893	7,040	7,040	October 1916	J.Adam, Marine Insurance Broker	Purchased	175	5%	
2489	Peveril ¹⁰	April 1893	7,040	7,040	October 1916	J.Adam; Maj.J.Finlaw, "Gentleman", Surrey	Purchased	175	5%	
2490	Inverleith ¹¹	April 1893	8,000	8,000	October 1902			150	10%	
2491	Behera ¹²	April 1893	6,400	6,400	November 1914	Henry Birkmyre, Rope Maker, Pt. Glasgow	Purchased	150	10%	
2501	Craigendoran ¹³	May 1893	9,600	9,600	October 1917	John Ferguson, Shipbuilder, London	Purchased	150	10%	
2503	Edward Williams ¹⁴	May 1893	3,840	3,780	January 1899	Robb, Moore & Co., Merchants & Shipowners, Glasgow	Purchased	150	10%	
2639	Jeanara	March 1893	32,000	25,000	October 1916	John Stephen; Latterly British Steamship Investment Trust	B: Alex Stephen & Co.	250	10%	
2640	Janeŕa	March 1893	32,000	25,000	October 1924	John Stephen; Fred W. Harris & James Dixon, Shipowners, London	B: Alex Stephen & Co.	250	10%	
2641	Rutherglen	March 1893	30,000	27,400	June 1919	James McMurray; W.Macadam Smith; James Napier	n.d.	200	10%	
2642	Everilda	March 1893	8,000	6,665	June 1919	S.S.Edward Williams & Co.Ltd.; W.Macadam Smith, James Napier	n.d.	200	10%	

TABLE 18 (continued)

Reg. No. BT2/	Name of Steamship Company	Date of Incorporation	Nominal Capital (£s)	Maximum Called-up Capital (£s)	Date of Dissolution ¹	Notable Subscribers and Shareholders ²	Vessel Built (B) or Purchased	Management	Remuneration
								Salary (£s Per Annum)	Share of Net Profits
2643	Marthara	March 1893	25,000	20,000	October 1919	James Stevenson; John Stephen; James McMurray	n.d.	200	10%
2644	Madura	March 1893	25,000	800	November 1900	J. & P. Henderson & Co., Shipbuilders, Partick	B: J. & P. Henderson	200	10%
2760	Alaska	October 1894	10,000	6,700	November 1919	James Napier; W.P. MacLay, Merchant	n.d.	200	10%
2930	Oceana	June 1895	32,000	21,000	June 1919	W. Macadam Smith	B: Alex Stephen & Co.	250	10%
2931	Magdala ¹⁵	June 1895	32,000	20,500	March 1953	W. Macadam Smith	B: Alex Stephen & Co.	250	10%

¹During the first six months of 1908, all the single-ship companies being managed by MacLay & M'Intyre, following alterations to their Articles of Association, were converted into private companies under the Act of 1907.

²In addition to MacLay & M'Intyre.

³File contains 18 separate agreements for the transfer of 29/64's in the vessel; MacLay & M'Intyre already held 18/64's.

⁴Twenty-one separate agreements for transfer of 37/64's; MacLay & M'Intyre already held 13/64's.

⁵Nineteen separate agreements for transfer of 33/64's in the vessel; MacLay & M'Intyre already held 9/64's.

⁶Nineteen separate agreements for transfer of 33/64's in the vessel; MacLay & M'Intyre already held 9/64's.

⁷James McMurray sold the vessel to the Company for £14,000.

⁸Abortive; ship wrecked before transfer to Company.

⁹Twenty-three separate agreements for transfer of 58/64's in the vessel; MacLay & M'Intyre already held 6/64's.

¹⁰Nineteen separate agreements for transfer of 55/64's in vessel; MacLay & M'Intyre already held 8/64's.

¹¹Twenty-five separate agreements for transfer of 42/64's in vessel; MacLay & M'Intyre already held 20/64's.

¹²Nineteen separate agreements for transfer of 51/64's in vessel; MacLay & M'Intyre already held 12/64's.

¹³Twenty-four separate agreements for transfer of 54/64's in vessel; MacLay & M'Intyre already held 10/64's.

¹⁴Twenty-nine separate agreements for transfer of 58/64's in vessel; MacLay & M'Intyre already held 5/64's.

¹⁵By the time of the dissolution of this company, by which time it had disposed of the Magdala and assumed ownership of the

S.S. Masunda, each £100 share had returned £1,641 to the owners.

TABLE 19

THE NOMINAL CAPITAL OF SCOTTISH COMPANIES INCORPORATED IN EACH YEAR,
1856-1895 (ALL OF WHICH HAD BEEN DISSOLVED BY 1975)

Year	Number of Companies Formed	Nominal Capital (£s)	
		Total	Average
1856	7	554,500	79,214
1857	22	1,739,130	79,051
1858	14	156,450	11,175
1859	5	35,850	7,170
1860	13	94,950	7,304
1861	22	182,720	8,305
1862	33	5,397,500	163,561
1863	28	1,175,900	41,996
1864	27	2,985,898	110,588
1865	36	2,782,810	77,300
1866	36	4,081,020	113,362
1867	17	611,400	35,965
1868	25	827,700	33,108
1869	17	836,250	49,191
1870	17	475,850	27,991
1871	43	1,440,600	33,502
1872	78	7,191,920	92,204
1873	58	4,800,300	82,764
1874	59	5,081,250	86,123
1875	45	4,329,000	96,200
1876	60	3,970,262	66,171
1877	78	5,909,900	76,806
1878	56	2,300,900	41,088
1879	52	2,387,102	45,906
1880	66	6,114,240	92,640
1881	71	15,676,250	220,792
1882	104	17,541,110	168,665
1883	105	7,109,980	67,714
1884	101	10,839,820	107,325
1885	72	4,393,084	61,015
1886	90	8,724,926	96,944
1887	82	5,446,350	66,419
1888	109	7,380,954	67,715
1889	122	4,640,924	38,040
1890	124	6,175,190	49,800
1891	135	3,742,295	27,721
1892	148	5,129,169	34,657
1893	169	7,268,318	43,008
1894	180	4,463,920	24,800
1895*	223	8,957,910	40,170

* Estimated

IV

THE CAPITAL OF THE EARLY SCOTTISH
JOINT STOCK COMPANIES

Forty years after the passage of the Act of 1856 the total nominal capital of the surviving non-railway Edinburgh-registered joint stock companies exceeded £110 million,⁹⁸ of which about half had been called up.⁹⁹ Even the nominal capital of those companies subsequently dissolved stood at over £91 million at the end of 1894 (the last year for which complete data had been abstracted from the files). Of this, £43.5 million, or 47.8 percent, had been called up (Table 12).

As had already been suggested,¹⁰⁰ perhaps the greatest value of the figures showing the aggregate nominal capital of the companies incorporated in each year (Table 19) is that they provide some indication of business optimism, but not too much significance should be attached to the magnitudes of the movements. Other factors were involved. For example, all the major Scottish banks adopted limited liability after the failure of the City of Glasgow Bank in 1878. The fact that the unfortunate stockholders of this unlimited bank had had to pay about £2,750 on each £100 share which they held at the time of the crash (i.e. if they remained solvent throughout the entire period during which calls were being made upon them) was the strongest inducement to both bank shareholders and the general public to accept the basic principle of limited liability in banking, hitherto regarded as a sign of insecurity.¹⁰¹ Thus, the massive increase in the total nominal capital of the Scottish companies that occurred in the early eighties was largely due to the incorporation of the banks.

The National Bank of Scotland and the Union Bank of Scotland (both of which were subsequently involved in mergers and thus dissolved in their original form, thereby appearing in Table 19) had each a nominal capital of £5 million, and between them they contributed a large proportion of the total nominal capital of all the 104 companies incorporated in 1882.¹⁰² This, however, is anomalous. In general, the relative magnitudes of the annual nominal figures afford some insight into general business confidence. Furthermore, after 1862 the average nominal capital per company formed at or near upper turning points of the cycle is usually higher than that of companies formed at or near the lower turning points.

Much more important than the figures for nominal capital are those for called up capital. For Scottish companies dissolved before 1970, the total called up capital of all those save domestic railways in existence at the end of each year 1856-1894 is given in Table 15, together with an estimate (almost certainly on the low side) of the called up capital of all Scottish non-railway companies. After 1858 it will be observed that with the exception of the years 1877-79 and 1891, the figures show a rapid rate of increase (see Chart 6), though some falling off occurred around the mid-eighties. This increase is largely a function of the formation of new companies, since the average called up capital per company remained remarkably stable after 1862 (Table 12), fluctuating about a mean of £33,500, the figure for 1870. It would appear, if the official figures were reliable, that the average Scottish company, at first somewhat larger was subsequently smaller than those registered in London. In 1887 the Registrar reported to the Select Committee on the Companies' Acts of 1862 and 1867

that about 7000 going concerns had an average paid-up capital of about £45,000; the Parliamentary return of 1883 gives an average of £53,000, whence it increased to a maximum of £64,000 in 1892, steadily to decline to £40,000 by 1913.¹⁰³

In the absence of specific and comprehensive information on the composition of the surviving London-registered companies, any explanation of the lower average paid-up capital of the Scottish firms must be conjectural. It is possible that the difference resides in the greater proportion of Scottish companies engaged in branches of manufacturing compared with the English sample, swollen as it was with a disproportionate number of large banking and overseas ventures; or the explanation may lie in the higher proportion of Scottish firms that approached the form of private companies, legally unrecognised until 1907. Certainly, the average nominal capital of "private companies" was much lower than that of the public companies listed in Burdett's Official Intelligence and which constitute the basis for Jefferys' calculations.¹⁰⁴

Whatever the reason for the differences in called up capital, to have over £50 million invested in the shares of limited companies by the early nineties in addition to some £100 millions in domestic railway companies¹⁰⁵ represented no mean performance by the Scottish economy. Of this sum, if the companies subsequently dissolved are representative, over 40 percent was in manufacturing activity, nearly 20 percent in public utilities (broadly defined to include shipping; refer to Appendix Table 1), 14 percent in mining and quarrying, 9 percent in finance and insurance and 8 percent in agriculture, forestry

and fishing. It was not always so (see Table 15). During the first ten to fifteen years following the Act of 1856, the leading industrial groups appear almost to jostle for first place. The initial importance of public utilities swiftly gave way to mining and quarrying which, in the early sixties, was overwhelmed (and the word is carefully chosen) by Finance and Insurance. Thereafter, relatively short-lived bursts of interest in one or other form of economic activity (for example, in iron, steel and coal in the early seventies, in banks in 1882, in overseas land companies in the period 1882-85) are reflected in the annual data, but the relative movements are slower and more sustained. In no group is this more so than in manufacturing, whose share of total called up capital moved almost relentlessly upward from 3 percent in 1862/63, to 15 percent in 1870, thence to 30 percent in 1880 and, after slipping somewhat with the banking and overseas floatations of the early eighties and the single ship mania, to 40 percent in the mid-nineties.

Moreover, most of this investment in manufacturing was located in Scotland. Of the £19.33 million called up by Scottish manufacturing companies in 1895, only £1.31 million (or 6.8 percent) was directed overseas (Tables 15 and 16). This is in marked contrast with the Agriculture, Forestry and Fishing group in which, since the early eighties, over 90 percent of the capital raised was for foreign and colonial enterprise. Perhaps more remarkable than the home/overseas ratios in each major industrial group, was the high proportion of the total capital raised that was destined for investment overseas. In only one year (1877) between 1868 and 1895 did this figure fall below

20 percent. Indeed, it was rarely less than 25 percent, reaching a high of 34.8 percent in 1883 and hovering around a third of the total capital called up by Scottish companies throughout the latter part of the 'eighties.

The period with which this paper is primarily concerned is insufficiently long and the focus of interest -- the Scottish incorporated company -- too narrow to draw any firm conclusions from the data that might shed light on the relative significance of "push versus pull" factors in determining Scottish overseas investment.¹⁰⁷ It may simply be observed that in supporting overseas ventures by Edinburgh-registered companies, Scottish investors seemed to be responding to the possibility of obtaining higher yields than were available in most branches of domestic economic activity (how else can the evidence of the prospectuses and newspaper "puffs" be interjected?) coupled with a relative dearth of local investment opportunities until the capital needs of the many great "conversions" that increasingly took place throughout the second half of the nineteenth century outran both internally generated profits and the resources of the vendors and the trusts that they established for their kinfolk. Until this took place the great majority of the early large firms were able to retain their "private" characteristics and refrain from any appeal to a wider public; until, that is, the very eve of the First World War, if not later.¹⁰⁸ This is not to say that the outsider was kept at bay in every case. From the seventies onwards investment opportunities increased with the flotation and growth of genuinely public companies with heavy capital requirements; it was simply that

they were insufficient to absorb the available savings being generated by the Scottish economy.

There was too, despite much abstract discussion of risk-aversion in the literature of overseas investment, a pronounced speculative element in the outflow of capital via the Scottish company. Archibald Coats, with the solid assets of the family thread-making company behind him, appears always to have been ready to venture considerable sums in schemes that strain credulity, and even for those of lesser wealth, the lure of gold remained irresistible throughout the century, whether it was to be found in the English West Country, Wales or the uttermost parts of the globe. Scottish investors may have purchased relatively safe and high-yielding foreign and colonial bond issues with the rest: the overseas companies that they themselves promoted and supported generally constituted far more of a flutter.

Jefferys has drawn attention to the fact that during the period 1885-1914, "existing companies in each year tended to become more and more important as the channel for the savings of the investing classes as compared with new companies in that year." His argument is based upon figures drawn from the Annual Returns of Joint Stock Companies and the Annual Winding Up Reports. These show that "from 1892 to 1900 the capital issues in each year by new companies were greater than those of existing companies. For the period 1901 to 1914 the capital issues of existing companies in each year was very much greater than the issues of new companies, from 1910 onwards being almost seven times as great."¹⁰⁹ Table 20 provides similar data for the dissolved Scottish companies for the period 1856-1895. It will

TABLE 20

SHARE CAPITAL PAID UP BY SCOTTISH COMPANIES (ALL SUBSEQUENTLY DISSOLVED)
AND SHARE CAPITAL "LOST" BY LIQUIDATIONS, ANNUALLY, 1856 - MID-1895.

Year	Net Addition To Called- Up Capital During Year (£s)	Capital Called Up By Companies Incorporated During Year (£s)	Capital "Lost" By Liquidations During Year (£s)	Capital Raised By Existing ("Old") Companies During Year (£s)
1856	321,410	321,410	-	-
1857	135,219	135,148	-	71
1858	- 205,829	124,066	453,030	123,135
1859	6,168	6,862	204	- 490
1860	37,637	34,981	3,061	5,717
1861	35,501	58,235	32,244	9,510
1862	2,635,940	2,631,120	8,813	13,633
1863	479,472	481,094	37,392	35,770
1864	170,599	367,966	315,411	118,044
1865	627,220	666,822	30,506	- 9,096
1866	595,935	357,427	80,208	318,716
1867	273,564	54,296	42,053	261,321
1868	995,389	207,143	216,095	1,004,341
1869	417,893	230,849	175,359	362,403
1870	210,205	147,716	73,105	135,594
1871	494,836	325,719	93,485	262,602
1872	2,222,674	1,926,199	191,345	487,820
1873	1,923,435	1,338,059	102,807	688,183
1874	1,442,793	416,882	234,264	1,260,175
1875	1,969,672	824,562	849,977	1,995,087
1876	226,818	862,754	426,385	- 209,551
1877	- 288,962	1,059,424	2,810,439	1,462,053
1878	- 643,930	676,261	1,937,615	617,424
1879	- 126,446	439,212	1,009,094	443,436
1880	1,321,796	1,660,711	715,431	376,516
1881	1,362,578	1,910,377	1,083,934	536,135
1882	3,975,310	4,587,394	2,111,261	1,499,177
1883	3,417,813	2,726,002	1,709,595	2,401,406
1884	1,948,958	3,160,691	1,571,129	359,396
1885	1,619,008	1,396,403	1,299,513	1,522,118
1886	1,580,465	2,160,053	1,201,119	621,531
1887	870,688	1,411,478	729,291	188,501
1888	2,420,237	2,693,629	1,373,884	1,100,492
1889	952,874	1,978,117	1,651,711	626,468
1890	2,674,570	3,458,073	2,360,755	1,577,252
1891	- 1,371,636	1,731,829	2,007,531	- 1,095,934
1892	3,458,299	2,995,438	984,697	1,447,558
1893	2,681,004	4,951,961	2,164,724	- 106,233
1894	2,674,421	2,776,652	1,443,164	1,340,933
1895 *	2,058,991	2,323,984	1,022,406	757,413
1856 - Mid-1895	45,602,589	55,616,999	32,553,037	22,538,627

* June 1895

be observed that even within a decade or two of the Act of 1856, occasionally there were years (e.g. 1867) in which existing ("old") companies were calling up amounts of capital larger than newly incorporated companies, and an even greater number of years in which capital called up by "old" companies more than compensated for the share capital "lost" in liquidations (between 1856 and 1894 this occurred fifteen times). What is interesting is that whereas the capital called up by "new" companies was frequently dominated by the amounts considered as paid up on vendors' and other shares,¹¹⁰ the capital raised by existing companies appears to have represented amounts subscribed by the public. Moreover, these figures, presented in the last column of Table 20, provide a much better indication of purposeful capital investment, since the sums raised were frequently for new capital formation,¹¹¹ than those in the second column, which in many years owe their magnitude to what were, in effect, transfer payments.

Be that as it may, the aggregate figures for the entire period show that the dissolved Scottish companies raised at least £82-83 million in share capital in the forty years following the Act of 1856, about two-thirds of it in the calendar year in which incorporation took place. Of this sum £32.6 million (or 40 percent) had been "lost" in liquidations by the summer of 1895 and about £3.2 million (or 4 percent) in the writing down of capital.¹¹² But whereas the word "lost" may legitimately be used to describe the amount of capital written down by existing companies, it is too strong a word to employ in connection with the share capital removed from the Register in liquidations. For example, it is manifestly incorrect to say that the

capital of companies that were sold, amalgamated or reconstructed (Mode of Dissolution Type 2) was lost. What, then, was the true loss involved? The information that might have enabled a proper calculation of this figure appears in the company files sparsely and in a most erratic and fragmentary manner. Therefore, it is possible only to estimate the size of the annual losses brought about by company failure.

The following assumptions, based on known (if spotty) data, have been made in the composition of such estimates:

- (i) The firms that disappeared in their original form each year possessed a paid-up capital equal to the estimated average of the companies in existence during the year in which they were removed from the register (the only exceptions being that it is assumed that abortive companies had, at the time of their dissolution or disappearance, raised only 10 percent of this average figure);
- (ii) of the sum raised by abortives, 50 percent was completely lost to the shareholders;
- (iii) companies sold, amalgamated or reconstructed, lost 20 percent of their share capital;
- (iv) insolvent firms (Mode of Dissolution Type 3) lost 90 percent of their share capital;
- (v) firms wound up voluntarily (Mode of Dissolution Type 4) lost 50 percent of their share capital;

- (vi) firms that dissolved in disregard of legal forms (Mode of Dissolution Type 5), in short, those that simply withered away, lost 100 percent of their share capital;
- (vii) between 1876 and 1895 the sum of £3.2 million was lost to shareholders in the writing down of capital, most of it in the second half of the period.

On the basis of these assumptions, the true annual percentage loss to the shareholders in Scottish companies may be expressed thus:

$$c = \frac{\left(\sum_{i=1}^5 \alpha_i n_i \right) k + w}{nk}$$

where

c = the capital loss expressed as a proportion of the estimated called up capital of all Scottish companies at the end of each year (i.e. the capital at risk) (See Table 12);

i = the modes of dissolution, characterized as types 1-5 (see above, p. 7, and Table 4);

α_i = the percentage loss of capital for each type of dissolution as set forth above;

k = the estimated average called up capital per company;

w = the estimated amount lost by the writing down of capital;

and n = the total number of Scottish companies in existence.

Although this formula produced some anomalies, especially in the early years when the total number of cases was small and their

distribution among the various modes of dissolution was unrepresentative, much more plausible results were produced for the the last twenty-five years of the period (see Table 21). If the fact that the formula occasionally produced patently erroneous results (i.e. an annual figure for the "true loss" by liquidations greater than the known maximum loss incurred by company dissolutions, see Table 20) be ignored on the grounds that the over estimates of loss incurred in some years were probably balanced by under estimates in others, these calculations indicate that the average annual rate of loss on the paid-up capital of Scottish non-railway joint stock companies, 1870-1894, was about 3.2 percent, or approximately half of one percent higher than the 2.7 percent that Macgregor estimated as being the rate of net insolvency loss on the paid-up capital of British non-railway companies for the period 1893-1902.¹¹³

V SIZE, GROWTH AND LENGTH OF LIFE

It has earlier been pointed out that the average length of life of the Scottish companies formed between 1856 and 1895 and dissolved before 1975 was 16.4 years and that, however short a period this may at first appear, it seems to have been longer than the average length of life of London-registered companies.¹¹⁴ In discussing company mortality, it has often been assumed that in periods of economic crisis or depression it was the younger and smaller companies that tended to be swept away. "As companies grow older, their connections

TABLE 21

ESTIMATED ANNUAL TRUE LOSS ON THE PAID-UP CAPITAL OF SCOTTISH NONRAILWAY COMPANIES, 1870-1894
(in Thousands of £s)

50 a

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Year	(Estimated) Average Called-up Capital for Company	Estimated True Loss by Liquidation, by Mode of Dissolution (No. of cases x assumed percentage loss)					Total of Cols. (2)-(6) ¹	Estimated Additional Loss by writing down Capital ²	Total Estimated True Loss	Called-up Capital at risk	Col. (8) Col. (9) ³
		(1) 5%	(2) 20%	(3) 90%	(4) 50%	(5) 100%					
1870	33.5	--	6.7	--	67.0	33.5	107.2*	--	107.2	7,507.1	1.4
1871	30.5	6.1	6.1	--	61.0	--	73.2	--	73.2	7,810.8	0.9
1872	31.8	9.5	--	28.6	159.0	31.8	228.9*	--	228.9	10,440.6	2.2
1873	33.1	8.3	6.6	59.6	66.2	33.1	173.8*	--	173.8	12,601.0	1.4
1874	34.6	15.6	6.9	31.1	173.0	--	226.6	--	226.6	14,725.7	1.5
1875	37.0	5.6	44.4	166.5	259.0	37.0	512.5	--	512.5	16,416.6	3.1
1876	34.9	8.7	27.9	94.2	226.9	69.8	427.5*	313.7	741.2	16,972.2	4.4
1877	31.3	14.1	68.9	112.7	313.0	93.9	602.6	82.4	685.0	16,478.6	4.2
1878	28.6	11.4	17.2	154.4	257.4	143.0	583.4	81.8	665.2	15,772.6	4.2
1879	28.8	13.0	11.5	285.1	158.4	201.6	669.6	82.9	752.5	16,576.0	4.5
1880	29.2	5.8	46.7	262.8	102.2	175.2	592.7	44.5	637.2	17,815.8	3.6
1881	29.5	5.9	17.7	371.7	103.3	88.5	587.1	48.3	635.4	19,321.9	3.3
1882	32.9	14.8	52.6	296.1	148.1	98.7	610.3	60.1	670.4	24,036.6	2.8
1883	35.6	16.0	78.3	448.6	338.2	213.6	1,094.7	70.1	1,164.8	28,052.3	4.2
1884	35.4	15.9	49.6	414.2	247.8	35.4	762.9	152.1	915.0	30,414.7	3.0
1885	36.6	9.2	51.2	395.3	274.5	256.2	986.4	162.5	1,148.9	32,501.7	3.5
1886	36.9	18.5	66.4	631.0	276.8	110.7	1,103.4	170.8	1,274.2	34,163.8	3.7
1887	37.1	13.0	37.1	333.9	519.4	259.7	1,163.1*	89.5	1,252.6	35,797.8	3.5
1888	37.5	16.9	60.0	573.8	450.0	112.5	1,213.2	96.6	1,309.8	38,623.9	3.4
1889	36.3	14.5	72.6	588.1	326.7	363.0	1,364.9	100.0	1,464.9	39,989.1	3.7
1890	36.1	5.4	108.3	422.4	451.3	108.3	1,095.7	107.7	1,203.4	43,076.1	2.8
1891	32.7	8.2	85.0	529.7	343.4	327.0	1,293.3	419.6	1,712.9	41,963.9	4.1
1892	33.4	15.0	53.4	691.4	501.0	66.8	1,327.6*	229.3	1,556.9	45,865.9	3.4
1893	33.2	18.3	39.8	836.6	448.2	132.8	1,475.7	494.1	1,969.8	49,408.5	4.0
1894	32.8	24.6	32.8	797.0	574.0	229.6	1,658.0*	263.7	1,921.7	52,738.3	3.6

¹The years in which that part of the formula concerned with the loss by liquidations produced figures in excess of the known maximum loss by liquidation (see Table 20) are shown by an asterisk.

²The estimates of loss caused by writing down of capital are net of capital returned to shareholders as being "in excess of the wants of the company."

³The average annual loss to shareholders was 3.2 percent of the amount of capital at risk. An additional set of estimates (not reproduced here) based upon aggregated data produced a figure of 3.4 percent.

Sources: Col. (1) - Calculated from data contained in Tables 6 and 12.

Cols. (2) to (6) - Calculated from data contained in Table 4 in accordance with assumed percentage losses by liquidation as given in text.

Col. (8) - Estimates based upon data contained in the company files.

Col. (10) - Based upon Table 12.

and goodwill expand and tend to keep them stable, and free from insolvency . . . companies appear to reverse human experience: with them, old age is partly a reason for expecting longer life." This observation, by Shannon, carries with it the implication that there exists some correlation between age and size: that older firms tend to be bigger firms.¹¹⁵ The later work of Hart and Prais indicated that during the first fifty years of the twentieth century British firms expanded largely by internal growth and that each increment of growth appeared to be associated with a decrease in the probability of 'death'.¹¹⁶ If this hypothesis is correct, it has obvious implications for understanding the development of industrial concentration, a subject which has recently been examined by Hannah and Kay.¹¹⁷

As the data collected during the course of this inquiry seemed to have some relevance to these and related issues an attempt was made to answer the following questions: Was the life expectancy of the joint stock companies incorporated in Scotland after 1856 a function of their initial size, measured by their called-up capital? That is, did larger firms live longer than smaller firms? And, second, was the rate of growth of Scottish firms a function of their initial size? That is, did firms which began active operations with a large capital grow proportionately faster than those which started with a smaller capital?¹¹⁸

To pursue these related inquiries involved adopting an appropriate definition of "initial size." Inspection of the data revealed that after the first two or three years following the Act of 1856, few of the early Scottish companies made any attempt to call

up all the capital that they evidently believed to be necessary for the successful inauguration of their activities -- or the extension of a firm previously organized as a partnership -- immediately upon incorporation. Rather, the great majority made a systematic start: calling up the necessary proportion of their authorized capital in stages. For example, a company incorporated with a nominal capital of £10,000 in, say October 1870, typically would have called up about £2,000 during the remaining months of 1870 (of which perhaps half would represent the amount considered as paid up on vendors' shares), £1,000 during 1871, and not until the Autumn of 1872, when the called up capital figure stood at about £3,500, would periodic calls on the shareholders cease. Only if the business proved successful would calls resume; perhaps, in this hypothetical example, in 1876. It was therefore decided that the initial size of each company might best be measured by the amount of capital called up within three years of the date of incorporation, although the volume of capital called up before the last day of the year in which incorporation took place was not ignored.¹¹⁹

It was now possible to proceed to a series of least squares regressions¹²⁰ of the form

$$Y = \beta'x$$

where, in answering the first question, the dependent variable, Y , was length of life and x , the independent variable, was either the capital called up within the year of incorporation, k_1 , or k_1 and the capital called up within three years in incorporation, k_3 . The results may

be summarized as follows:

TABLE 22
REGRESSION OF LIFE ON k_1 and on k_1 and k_3

(a) Life on k_1

R^2	0.0088		
Standard Error	229.5421		
Overall F (1,2411)	21.2752		

<u>Variable</u>	<u>B</u>	<u>Standard Error</u>	<u>F</u>
k_1	0.000304	0.00007	21.2752
Constant	206.307		

(b) Life on k_1 & k_3

R^2	.0.0118		
Standard Error	229.2345		
Overall F (2,2410)	14.40		

<u>Variable</u>	<u>B</u>	<u>Standard Error</u>	<u>F</u>
k_3	0.000367	0.00013	7.475
k_1	-0.000077	0.00015	0.249
Constant	205.0317		

These data indicate that the mere size of a company at birth or within three years of birth had a negligible influence on its expectation of life in its original form,¹²¹ at most 1.2 percent of the variance in life is explained by initial size. Other factors were infinitely more important: the nature of the firm's activities, the quality of its direction and management, the state of the economic environment within which it operated, and so on. To illustrate the influence of the first of these, Table 23 shows the average length of life of companies in various industrial categories. Not surprisingly, public utilities

involved in the supply of gas, water and electricity had by far the longest lives. Real estate companies and textile firms also enjoyed life spans substantially longer than the average. The speculative nature of overseas ventures in mining and quarrying is revealed, while the relatively short lives of chemical firms is explicable in terms of contemporary merger activity. The possibility that the economic climate prevailing during the year of incorporation might have been influential in determining infant and adult health was tested, but the hypothesis that more robust firms might have been brought into being during periods of depression -- when both promoters and shareholders were more likely to have been more careful in establishing and supporting concerns -- received little support from the generalized data presented in Table 7. The fact is that to explain company longevity necessitates going beyond numerical aggregates to the quality of entrepreneurship possessed by company directorates, and data on this intangible factor is not to be found in the company files.

In attempting to answer the second question: whether the rate of growth of Scotland firms was a function of initial size, the statistical data also produced negative results. After companies with lives longer than three calendar years were selected, the growth rate (Y) was computed so that

$$Y = \frac{k_f - k_3}{\text{Life} \cdot k_3}$$

TABLE 23

AVERAGE LENGTH OF LIFE OF DISSOLVED SCOTTISH COMPANIES
BY SELECTED INDUSTRIAL CLASSIFICATIONS

Industrial Classification	Brief Description	Average Length of Life in Years
120	Coal Mining	20.9
116,151,152	Overseas Companies in Mining & Quarrying	6.4
210-230	Manufacturing: Food, Drink & Tobacco	17.2
240,250,262	Manufacturing: Textiles, Clothing & Footwear	21.1
300	Manufacturing: Paper & Allied Products	16.6
320	Manufacturing: Chemicals & Allied Products	10.0
340	Manufacturing: Iron & Steel & Products	14.8
360	Manufacturing: Machinery	12.7
370	Manufacturing: Transportation Equipment	11.9
410	Public Utilities: Transportation	13.4
430	Public Utilities: Electricity, Gas & Water	36.1
610-690	Retail Trade	13.6
810-870	Finance & Insurance	17.7
880	Real Estate	24.9
900	Agricultural, Forestry & Fishing	13.6
100-900	ALL DISSOLVED COMPANIES	16.4

where

k_f = final capital, i.e. the called up capital during the last month of a company's existence in its original form;

k_3 = the capital called up after three calendar years;

and Life = the length of a company's life in months.

The growth rate, Y , was then regressed on k_3 for all those companies surviving for over three years in each of the following major industrial groups: (a) Mining and Quarrying (Industrial Classification: 100-152), (b) Manufacturing (I.C.: 200-390), (c) Public Utilities (I.C.: 400-446), (d) Wholesale and Retail Trade (I.C.: 500-690), (e) Service Trades (I.C.: 700-740), (f) Finance, Insurance and Real Estate (I.C.: 800-890), and (g) Agriculture, Forestry and Fishing (I.C.: 900-920). Once again, the results may be summarized in tabular form (Table 24).

As in the previous examination of the influence of birth size and life expectancy, these data show that whatever else it was that determined the growth rate of Scottish incorporated firms in the second half of the nineteenth century, it was not the initial called up capital, which at most (in Mining and Quarrying) explained about 3 percent of the subsequent growth of companies within the major industrial groups. Somewhat surprisingly, it must be concluded that the incidence of factors which brought about growth and decline in firms which retained their original form (i.e. those which were not dissolved as a preparatory step to participating in a merger) was unrelated to

the initial size of the firm¹²² and that therefore these data are not inconsistent with the apparently implausible basic assumptions underlying the Law of Proportionate Effect or, as it has become known, Gibrat's Law.¹²³

VI GAINS AND LOSSES

In past studies of the British limited joint stock companies, much has been made of the failures: "The companies wound up compulsorily or under supervision or by reason of liabilities . . . within five years of registration. [For these companies] it is reasonable to assume that . . . investors lost all, or almost all, the capital sunk."¹²⁴ Or again, "If a balance sheet could be drawn up of the losses and gains to Great Britain from the establishment of companies on the limited principle to work industrial undertakings, we have no doubt the balance would be largely on the wrong side."¹²⁵ But, as Edelstein has so justly remarked, "A study of returns to financial capital should optimally involve analysis of both failures and successes."¹²⁶ Ideally, estimates of capital loss should be set against the returns yielded by investment in the great mass of companies, insufficient and incompetent though many of them may have been, that attempted to attain the objectives outlined in their Memoranda of Association. The company files rarely provide such information nor, with certain exceptions, can it be obtained elsewhere.¹²⁷ Few records have survived of the majority of those companies which were in fact, if not in law, private companies. The only relevant data fairly

TABLE 24

LEAST SQUARES REGRESSIONS OF GROWTH RATES (Y) OF COMPANIES
SURVIVING MORE THAN THREE YEARS ON k_3 : BY MAJOR INDUSTRIAL GROUPS

(a) Growth Rate of Mining and Quarrying Companies on k_3

R^2		0.0024	
Standard Error		0.0123	
Overall F (1,272)		0.643	
<hr/>			
<u>Variable</u>	<u>B</u>	<u>Standard Error</u>	<u>F</u>
k_3	-0.000069	0.00009	0.643
Constant	0.00238		

(b) Growth Rate of Manufacturing Companies on k_3

R^2		0.0011	
Standard Error		0.0219	
Overall F (1,704)		0.755	
<hr/>			
<u>Variable</u>	<u>B</u>	<u>Standard Error</u>	<u>F</u>
k_3	-0.000085	0.00010	0.755
Constant	0.00279		

(c) Growth Rate of Public Utility Companies on k_3

R^2		0.00097	
Standard Error		0.00967	
Overall F (1,659)		0.637	
<hr/>			
<u>Variable</u>	<u>B</u>	<u>Standard Error</u>	<u>F</u>
k_3	-0.000059	0.00007	0.637
Constant	0.00129		

(d) Growth Rate of Wholesale and Retail Trading Companies on k_3

R^2		0.0025	
Standard Error		0.0047	
Overall F (1,97)		0.243	
<hr/>			
<u>Variable</u>	<u>B</u>	<u>Standard Error</u>	<u>F</u>
k_3	-0.000056	0.00011	0.243
Constant	0.00135		

(e) Growth Rate of Service Companies on k_3

R^2		0.00004	
Standard Error		0.0036	
Overall F (1,254)		0.00902	
<hr/>			
<u>Variable</u>	<u>B</u>	<u>Standard Error</u>	<u>F</u>
k_3	-0.00026	0.00027	0.009
Constant	0.00105		

(f) Growth Rate of Finance, Insurance & Real Estate Companies on k_3

R^2		0.00064	
Standard Error		0.0828	
Overall F (1,282)		0.1800	
<hr/>			
<u>Variable</u>	<u>B</u>	<u>Standard Error</u>	<u>F</u>
k_3	-0.00016	0.00037	0.180
Constant	0.0092		

(g) Growth Rate of Agricultural, Forestry & Fishing Companies on k_3

R^2		0.0000	
Standard Error		0.0037	
Overall F (1,120)		0.00023	
<hr/>			
<u>Variable</u>	<u>B</u>	<u>Standard Error</u>	<u>F</u>
k_3	0.0000007	0.00005	0.0002
Constant	0.00112		

readily available are the dividends paid on publicly traded shares and there is no satisfactory manner of judging whether or not they were representative;¹²⁸ I suspect that over time they were on the low side.

At present, it is impossible to say precisely how far the net losses incurred in liquidations were compensated for by the returns received by investors before dissolution took place. But if the general validity of Edelstein's judicious estimate of 6-9 percent per annum as the average return on British manufacturing and commercial equity be accepted (and this figure would, it is argued, have been exceeded by the average return on overseas investment),¹²⁹ it would appear that on the whole the possessor of a diversified portfolio of shares in the Scottish companies incorporated during the second half of the nineteenth century benefitted financially from his investment. He might well have received a net return of about 3-4 percent,¹³⁰ the real value of which would undoubtedly have been boosted by prevailing price trends.¹³¹ Not startling perhaps, but enough to inspire the belief that the financial gains almost certainly outweighed the losses.

In drawing up any balance sheet of "the gains and losses from the establishment of companies on the limited principle," it is not enough to consider only the direct financial return on equities. It is a peculiarity of many forms of investment that the benefits accruing to the community often exceed those to the shareholder. The limited company, whatever its initial weaknesses, however much it disappointed the hopes of its proponents in the mid-fifties, played a significant role in permitting the continued evolution and

diversification of the Scottish economy in the later half of the nineteenth century and in generally improving the standard of life of the Scottish people. It is unnecessary to elaborate this point. It is enough to draw attention to such themes as the greater stability of Scottish banking following the adoption of limited liability after the failure of the City of Glasgow Bank; the remarkable progress made in the heavy industries, in steel-making, ship-building and marine engineering; the cutting of freight charges brought about by competition between shipping companies; the massive reduction in the prices of many of the staple foodstuffs following upon the rapid development of the pastoral areas of North America and Australia; the greatly enhanced provision of public amenities, gas, water, electricity, public halls and cemeteries. All these and many more factors, in improving the quality of life of the multitude stemmed to a greater or lesser extent from the adoption of the limited joint stock company form of business organization. They surely deserve some place in any balance sheet of gains and losses?

VI CONCLUSION

This essay has tried to do for the early Scottish limited companies what Shannon and others have already done for the London-registered companies.¹³² Only inasmuch as an attempt had been made to achieve a greater precision and a deeper level of analysis than earlier writers on this general theme -- the general setting for which

continues to be Jefferys' enduring study of Business Organization in Great Britain, 1856-1914 -- is there any real difference. A question which remains to be asked is whether the Scottish experience was simply a regional reflection of the British whole. Any attempt to provide a definite solution is inhibited by a lack of comparable data, but a provisional answer would be "not entirely so." In this, as in so many other facets of economic and social history, Scotland was somewhat different. The Scottish limited companies appear to have been smaller, to have enjoyed a more lengthy existence, to have been less bedevilled by fraud, ignorance and gross mismanagement, and to have been controlled by their founders a little longer than their English counterparts; and they probably produced a marginally higher net return to their shareholders. Yet in other respects one cannot help believing that a like analysis of the London-registered companies would produce similar results. For example, the influence of the trade cycle on the timing of promotional and incorporation activity appears to have been much the same in Scotland, England and America, and there seems to be no reason to expect that the relationship between initial capital size, life and the rate of growth would have been different had the analysis been of English companies.¹³³

Whatever proves to be the case, this essay will have achieved its purpose if its underlying data has some value for economic historians and if its methods possess some utility for future inquiries by either historians or economists into what might be called institutional demography.

APPENDIX TABLE 1

CATEGORIES USED IN CLASSIFYING COMPANIES

100	Mining and Quarrying	220	Beverages
110	Metal Mining	221	Malt and malt liquors
111	Iron	222	Distilled, rectified and blended liquors
112	Copper and Sulphur	223	Wines
113	Lead and Zinc	224	Nonalcoholic beverages
114	Gold and Silver	225	Others (including those not allocable)
115	Other metals	230	Tobacco manufacturers (including snuff)
116	<i>Overseas companies engaged in the above categories</i>	240	Textile-mill products
117	Unallocable	241	Cotton
120	Coal Mining	242	Woolen and worsted
140	Nonmetallic mining and quarrying	243	Silk
141	Stone, sand and gravel (including granite, slate, marble and limestone)	244	Linen, flax, hemp and jute
142	Other mining and quarrying (including clay, asbestos, mica, rock salt, peat cutting and processing)	245	Rope works and sail manufacture
150	Those engaged in combinations of the above activities and/or including the working of nitrate deposits	246	Knitted goods (including hosiery)
151	<i>Overseas companies in this category (Colonial)</i>	247	Carpets
152	<i>Overseas companies in this category (Foreign)</i>	248	Dyeing and finishing textiles
200/300	Manufacturing	249	<i>Overseas ventures in the above categories</i>
210	Food and kindred products	250	Apparel and other finished products made from fabrics
211	Bakery products	251	Men's and boys' clothing
212	Confectionary and related products (including chocolate and cocoa products)	252	Women's, children's and infants' clothing
213	Canning and preserving fruits, vegetables and seafoods	253	Fur goods
214	Meat products	254	Millinery
215	Grain-mill products	255	Other apparel
216	Dairy products	256	Unallocable
217	Sugar	260	Leather and leather products
218	Others (including combinations of the above activities)	261	Leather: tanned, cured and finished
219	<i>Overseas ventures in the above categories</i>	262	Footwear (except rubber)
		263	Other leather products
		270	Rubber, gutta-percha and vulcanite products
		280	Lumber and timber basic products (see also categories 916-17; i.e., those produced in sawmills)

APPENDIX TABLE 1 (continued)

290	Furniture and finished timber products	340	Iron and steel and their products
291	Furniture	341	Blast furnaces, steel works and rolling mills
292	Wooden containers (including barrels, casks and boxes, often bound in metal)	342	Fabricated structural steel and ornamental metal work
293	Others (including matches and cork products)	343	Light rolled products and tinplate
300	Paper and Allied Products (including mill board)	344	Tools and general ironmongery (except machine tools and cutlery)
310	Printing, publishing and allied industries	345	Heating apparatus (except electric), enameled-iron sanitary ware and boiler-shop products
311	Book publishers	346	Others (including cast iron pipes, cutlery, foundry and wires products) [See also 362]
312	Newspapers, periodicals and journals	348	<i>Overseas ventures in the above categories</i>
313	Unallocable	350	Nonferrous metals and their products and electrical machinery
320	Chemicals and allied products	352	Jewellery
321	Paints, varnishes, polishes, timber preservatives and colours	353	Others
322	Soap and glycerine	354	Electrical machinery and apparatus (including light bulbs)
323	Drugs, toilet preparations and insecticides	360	Machinery (except electrical)
324	Fertilizers	361	Special industrial machinery (usually made under patents)
325	Animal and vegetable oils (tallow, lard and stearine)	362	General industrial machinery (including those produced by companies possessing both a foundry and machine shop)
326	Shale oil: distillation and refining of crude oil into refined products (e.g., paraffin) from shale, coal, etc.	363	Metal working and wood working machinery
327	Others (including industrial chemicals and metal extraction from ores)	364	Engines and turbines
328	Explosives and gunpowder	365	Construction and mining machinery
329	<i>Overseas ventures in the above categories (including oil wells and petroleum refining)</i>	366	Agricultural machinery, steam tractors and ploughs
330	Stone, clay and glass products	367	Office and shop machines, equipment and supplies
331	Brick, tile and other structural clay products	368	Others (including refrigerators, sewing machines, gas purification plant, water and gas meters)
332	Pottery and related products	370	Transportation equipment
333	Glass and glass products	371	Railway equipment (including locomotives)
334	Cement	372	Railway rolling stock
335	Concrete, gypsum and plaster products	373	Ship and boat building
336	Others (including abrasives, asbestos products and cut stone)	374	Specialized parts of vessels (e.g., stern frames, propellers and anchors)
337	Unallocable	375	Dry docks and slipways
338	<i>Overseas ventures in the above categories</i>	376	Bicycles and parts
		377	Others (including carts and wheelbarrows)
		378	Unallocable (including those involved in combinations of the above activities)

APPENDIX TABLE 1 (continued)

380	Miscellaneous manufacturing industries	443	Building and improvement of the dwellings of the working class
381	Ice	444	Cooperative building companies (i.e., petty maspns, joiners and plumbers joining together)
382	Others (including professional and scientific instruments, photographic apparatus, toys, guns and ammunitions, and articles combining metal, glass and wooden components)	445	Builders and contractors
383	Linoleum and floor cloth combining textiles, cork, oil, etc.	446	Cemeteries
400	Public Utilities	500	Wholesale Trade
410	Transportation	510	Merchant wholesalers
411	Ocean shipping	511	<i>Companies established specifically for overseas trade</i>
412	Coastal shipping, tug and pilot boat companies and salvage companies	512	Companies established specifically for trading in agricultural produce or in the products required by farmers, including auctioneers specializing in such products
413	Single ship companies	520	Commission merchants, manufacturers' agents, merchandise brokers, wharfingers and general warehousemen
414	Railways	530	Others (including those who combine the functions under categories 510 and 520)
415	<i>Railways (Colonial)</i>	600	Retail
416	<i>Railways (Foreign)</i>	610	Department, general merchandise and grocery stores
417	Tram companies and road steam engines for urban haulage	611	Cooperative ventures, especially stores
418	Omnibus companies for passengers and parcels, freight carriers and job masters	620	Food
419	Canal operation and ferries	630	Chemists and druggists
420	Communication: telephones and telegraph and overseas ventures	690	Others (including hardware, house furnishings and furniture, coal yards, book shops and tobacconists)
421	<i>Overseas ventures in coastal and river shipping, omnibus companies and the like</i>	700	Service
422	<i>Overseas ventures in telegraphy (Colonial)</i>	710	Domestic and personal
423	<i>Overseas ventures in telegraphy (Foreign)</i>	711	Hotels, boarding houses, cafés, coffee houses, restaurants and temperance establishments
430	Other public utilities	712	Laundries
431	Electric light and power	713	Photographic studios
432	Gas production and distribution and by-products (including coke)	714	Others (including public bath houses and undertaking establishments)
433	Water	720	Business services (e.g., advertising, packing, stevelores, trade protection societies, etc.)
435	Piers, harbors and shipways	722	<i>Overseas ventures (Foreign)</i>
436	Others (including weigh bridges, sewage and tunnels)		
439	<i>Overseas ventures in the above categories (Foreign)</i>		
440	Public halls, house construction and renovation, and cemeteries		
441	Assembly halls and drill halls		
442	Produce exchanges, collections of shops and bazaars		

APPENDIX TABLE 1 (continued)

730	Amusement and entertainment (including theatres, opera houses, sports and social clubs)	900	Agricultural, Forestry and Fishing
740	Others (including political, charitable and religious organizations, schools, colleges, hospitals, hydropathic establishments, companies to operate museums and exhibitions, mechanics' institutes, reading rooms, swimming baths and public parks)	910	Agriculture (including threshing and cultivation and haulage by steam power and other such agricultural aids)
800	Finance, Insurance and Real Estate	911	Home
810	Commercial banks and trust companies	912	Colonial
820	Building societies	913	Foreign
830	Mortgage, heritable property and feuing companies	914	Ranching (i.e., land and cattle companies): Colonial
831	Home	915	Ranching: Foreign
832	Colonial	916	Forestry and lumbering (i.e., land and timber companies): Colonial
833	Foreign	917	Forestry and lumbering: Foreign
840	Investment trusts and companies	920	Fishing
841	Home	921	Fishing and dealing in fish, curing, processing waste parts of fish, distribution, etc.
842	Colonial	922	Fishing: British inshore waters
843	Foreign	923	Fishing: deep sea, including sealing and whaling
850	Stock brokers and investment bankers		
860	Finance companies and industrial and personal loan companies		
861	Petty money-lending		
870	Insurance, life assurance and annuity companies		
871	Insurance against diseases of, and accidents to, cattle		
880	Real estate (including urban improvements)		
881	Home		
882	Foreign		
883	Colonial		
890	Those not allocable to the above categories (including general auctioneers, patent holding companies)		
891	Colonial		
892	Foreign		

AN INDUSTRIAL CLASSIFICATION OF SCOTTISH JOINT STOCK COMPANIES FORMED
BETWEEN 1856 AND JUNE 1895

Year	Mining & Quarrying															Manufacturing (continued)											
	100								120							200-300											
	Metal								140		Nonmetal		150			210								Food & Kindred Products			
	111	112	113	114	115	116*	117			141	142		151*	152*			211	212	213	214	215	216	217	218	219*		
1856															3	1	1										
1857	1								1	1					7	2	1				1						
1858	1	1	1												2	1	1										
1859																											
1860	3	1		2					1	1					3												
1861	5	3		2		1						2			5	1	1										
1862	6	6		3	3										3	1	1										
1863	3	2					2					1			4	1	1										
1864	1											1			4	1						1					
1865	1											1			12												
1866	3	1				1			2	2					16												
1867															2												
1868	5	1			1				1	1		3		1	2												
1869	1								1	1																	
1870	2	1			1							1	1		3												
1871	4	2				1	1					2			13												
1872	18	4				4		8	2	2		4	1	3	26	1	1										
1873	17	4				3	1	3	6	3	3	4	1	3	16	1										1	
1874	8	2			1			1	2	2		1		1	11	2	1						1				
1875	6	2				2		2	1	1		1			9												
1876	9	4				2	2	2	2	2		1			15												
1877	5	1				1		1	3	2	1				15												
1878	4	2				2		2							13	2					1	1					
1879	6	2			1	1		3				1			9	1										1	
1880	2							1				1		1	20	2	1				1						
1881	7	1				1		3	1	1		2	1		22	5			1		1	2		1			
1882	8	3				2	1	3	2	2					24	1				1							
1883	8	5				5		2				1		1	35	3	1		1		1						
1884	10	6		1		4		2	2	1	1				43	5	1					2	1			1	
1885	6	1				1		3	2	2					24												
1886	8	3				3		2	2	2		1	1		31	2			1						1		
1887	7	2				2		5							30	2					1	1					
1888	9	7		1		6		2							41	6	1				2	3					
1889	20	11			1	10		7	1	1		1			47	6	1	1	1		2	1					
1890	17	8				8		5	3	2	1	1		1	59	4					2					2	
1891	7	3				3		3	1			1			65	9			1		1	4		3			
1892	13	6				6		6	1		1				64	2			1			1					
1893	21	2				2		10	4	4		5	2	3	70	3		1						1	1		
1894	27	15				14	1	6	2		2	4	2	1	65	8		3	1	1	1		1	1			
1895	18	10			1	2		4	2	2		2	1	1	49	5	1	1	1		1				1		
Total	297	123	1	9	7	4	2	92	8	88	45	35	10	41	10	16	882	78	14	7	7	1	16	15	4	8	6

* Indicates overseas ventures.

NOTES:

- For major category totals, see Table 14
- Figures given some of the sub-groups (i.e., those with a classification number which is a multiple of ten but not of one hundred) include the number of companies which could not properly be more precisely defined. For example, where the figures for companies formed in the category 510 do not equal the sum of 511 and 512, the difference is made up of companies which could not be described more accurately than "merchant wholesalers" (category 510).

APPENDIX TABLE 2 (continued)

Manufacturing															(continued)														
Year	220 Beverages					230	240	240 Textiles							247	248	249*	250 Clothing						260	260 Leather			270	
	221	222	223	224	225			241	242	243	244	245	246	251				252	253	254	255	256	261		262	263			
1856																													
1857																													
1858																													
1859																													
1860																													
1861																													
1862								1				1																	
1863																													
1864																													
1865	1	1						3		2		1																	
1866	1	1						2	1							1													
1867								1		1							1						1						
1868																													
1869																													
1870																													
1871								1				1												1	1				
1872								2								1								1	1				
1873	1	1						3				1	1			1								1	1				
1874	1				1			1								1													
1875								3	1	1						1													
1876	2		2					3	2			1																	
1877	2	1	1																					1					
1878																													
1879								2							2														
1880	1		1					1	1								1	1											
1881							1	3	1			1			1														
1882	2		1		1			1					1											1		1			
1883	3		1		2			10	2	1		4	1		1	1								1		1			
1884	1	1						3	1			1				1													
1885	3		1		2																								
1886	4		2		2		1	3	1			1				1													
1887	4	1	2			1		3				1	1	1			1							1					
1888	3	1	2					6	1							3	2												
1889	4	2	1		1			4		1		2	1											1		1			
1890	8	2	4		1	1		6	2	1		2				1		1											
1891	3	1	2					5	1	1			1			2		1						1	1				
1892	5	2			2	1		10	2	1		6				1		1						1					
1893	10	1	8		1		1	9		2		3				2		1		1				1		1			
1894	14	3	10			1		8	1	1		3	1			1	1												
1895	10	5	5					4	1	1						1	1												
Total	83	23	43	0	13	4	3	98	18	13	0	29	7	1	2	17	8	7	1	1	0	0	0	3	9	4	4	0	11

APPENDIX TABLE 2 (continued)

Manufacturing																												(continued)	
Year	280	290 Wood Products				300	310 Publishing				320 Chemicals & Allied Products										330 Stone, Clay & Glass								
		291	292	293	311		312	313	321	322	323	324	325	326	327	328	329*	331	332	333	334	335	336	337	338				
1856						1	1																						
1857						1		1		1	1								1		1								
1858																													
1859																													
1860									2				1				1												
1861						1		1																					
1862									1						1														
1863						1		1	1							1													
1864									2						1	1													
1865					1				2							1		1											
1866					1				10						9	1			1										
1867																													
1868					1																								
1869																													
1870									2					1		1		1	1										
1871						1		1	6				1		3		1	1	2					1	1				
1872	1	1		1		1		1	5	1			1		2	1													
1873	1				3	2		1		1																			
1874		1		1		1		1	1							1			1										
1875					1	1		1																					
1876						4		4	3						1		1												
1877					1	4	1	3	3		1				1		1		1						1				
1878	1					1		1	4						2	2													
1879																		1		1									
1880						3	2	1	6						2	4													
1881					2	2		2	1						1			3		2	1								
1882									4	1	1		1		1			5	3				1			1			
1883	1					2		1	6						5														
1884		2		2	1	3		2	8		1				2	3		2	2	2									
1885		2		1	1	3		3	11	3		1			2	4		1											
1886					2	2		1	7	1			2		1	2	1												
1887		1		1	1	2	1	1	4	1	1	2						2	1					1					
1888					2	3	1	1	4							4			3		2				1				
1889		1		1	2	6	1	4	6	1		1		1		2	1												
1890	2				5	5	2	2	7	2			1		1	3		2	2										
1891		2	1	1		7		3	9			2	1			4	1	1	3			1	1						
1892		4	1	3	3	6		3	13	2	1	3				4		1											
1893	6	2	1	1	2	7		7	7			1	3	2				5	4			1							
1894	1	3	1	2		1		1	5	1	1	1				2		2		1			1						
1895		1	1			5	1	1	5			1				4		5	3		1	1							
Total	13	20	5	14	1	28	76	10	49	15	146	14	6	12	7	4	38	47	7	6	40	16	4	8	2	1	4	3	2

APPENDIX TABLE 2 (continued)

Manufacturing											(continued)													
Year	340	Iron & Steel								350	Nonferrous			360	Machinery (except Electrical)									
		341	342	343	344	345	346	347	348*		352	353	354		361	362	363	364	365	366	367	368	369	
1856																								
1857	1						1																	
1858														1							1			
1859																								
1860														1		1								
1861																								
1862																								
1863														1							1			
1864																								
1865														2						1	1			
1866	1			1																				
1867																								
1868														1	1									
1869																								
1870																								
1871																								
1872	6	5						1						3	2	1								
1873	2	2												1	1									
1874														2		2								
1875														2	2									
1876														2	1					1				
1877	1		1											1		1								
1878	1						1							2	1			1						
1879	1	1								1		1		1				1						
1880	1	1												1	1									
1881	4	2			2					1			1											
1882	4	2				1	1			3		1	2	3	2								1	
1883	1	1												4	4									
1884	4		1		1		1	1		4	1		3	6	3	2		1						
1885	1	1												2	1	1								
1886	4	2						1	1					3	2							1		
1887	3	1				1		1						5	1	2					1	1		
1888	3	1	1			1				2			2	2		2								
1889	3	1					1	1		4		1	3	8	2	2	1	1			1		1	
1890	5	2				2	1			1			1	6	1	4					1			
1891										1		1		15	6	8		1						
1892	8	1	1		2	1	3							8	1	6					1			
1893	2	1	1							2			2	6	2	4								
1894	4		1			2	1							12	6	4					1		1	
1895	3		1		1			1						6	1	1		1	1	1			1	
Total	63	24	7	1	6	8	10	6	1	19	1	4	14	107	41	40	2	6	1	3	5	5	4	

APPENDIX TABLE 2 (continued)

Year	Manufacturing													400	Public Utilities												(continued)		
	370 Transportation Equipment									380 Miscellaneous					410 Transportation									420 Communication					
	371	372	373	374	375	376	377	378		381	382	383			411	412	413	414	415*	416*	417	418	419		421*	422*	423		
1856	1		1										5	4	3	1													
1857													8	2	1							1							
1858													10	1		1													
1859													5	1		1													
1860													7	2		2													
1861	2		1		1								11	2		1						1							
1862													14											1	1				
1863													10	3	1	1						1		1					
1864	1					1							14	8	2	6								2					
1865	2			1	1				1		1		13	4		3								1			1		
1866	1							1					12	3		2						1		2	1				
1867													10	3		3													
1868													10	2	1	1													
1869													9	2	2														
1870													6	1	1														
1871	2		2										17	3	1								2						
1872	3			1	1			1	2	1		1	20	10	4	3		1			1	1							
1873									1			1	12	2		1					1								
1874	1		1										16	3	1	1						1							
1875	2	1		1									11	2		1						1		1	1				
1876	1			1									15	2	1	1													
1877	1			1									17	5	2	2					1								
1878									1			1	10	1		1													
1879	1	1							1		1		15	7	2	4					1			2					
1880	1				1				2		1	1	12	4	1	2				1				2		1			
1881													21	12	2	3	7												
1882													36	26	6	3	15				1		1						
1883	1			1					2		1	1	32	25	5	2	18												
1884	3	1		1	1				1		1		23	14	3	1	8		1		1								
1885	2	1		1									16	12	1	3	6					2							
1886	1			1					2	1	1		19	13	3	3	6						1						
1887	1	1							1		1		20	10		1	9												
1888	4		1	2	1				2		1	1	29	20		2	17			1									
1889									1		1		35	29	2	4	22					1							
1890	3			3					3	1	2		32	22	2	2	18							1					
1891	4			3	1				5		3	2	40	32	4		27				1			1					
1892	3			1			1	1					38	36	4	2	29			1									
1893	3		1				1	1	2		1	1	46	41	9	4	26				1	1							
1894	3	1		1			1		3		2	1	54	41	3	3	32				1	2							
1895	3			1			2		1		1		20	18		3	12					3							
Total	50	6	6	21	7	1	5	2	2	31	3	18	10	750	428	67	74	252	1	1	3	9	18	3	13	3	1	1	

APPENDIX TABLE 2 (continued)

Year	Public Utilities														500	Wholesale Trade				600	Retail Trade					
	430	Others						440	Halls, Houses & Cemeta ies							510	520	530	610		620	630	690			
		431	432	433	435	436	439*		441	442	443	444	445	446										511*	512	611
1856	1		1																							
1857	6		5	1															3	3	1					
1858	8		5	3				1	1																	
1859	3		3					1																		
1860	2		2					3		3																
1861	6		4	2				3	2		1								3	3	2					
1862	8		7		1			5	1		2	1	1						1	1	1					
1863	2		2					4	1	2				1												
1864	1		1					3		2	1				1	1				1	1	1				
1865	3		2			1		4	1		2			1												
1866	4		2	2				5	2		1	2			2	2	1			1					1	
1867	3		3					4	1	1	1	1			1	1				1	1	1				
1868	5		4	1				3		1		2			2	1		1								
1869	5		4				1	2	1	1					1	1										
1870	4		3	1				1	1																	
1871	5		5					9	6	1		1		1	3	1		1	2		1	1	1			
1872	3		3					7	5	1				1	4	2		2	1	1						
1873	2		2					8	3	2			1	2	2	2		1								
1874	4		3	1		1	1	9	5	1	1	1	1		2			1	1	2	2	2				
1875	5		4		1			3	2		1				3	1			1	1	1	1				
1876	3		1		2			10	6	2				2	2	2	1									
1877	2		2					10	6	1	1		1	1	2	2		2			1	1	1			
1878	3				2		1	6	4					2	3	3	1	1								
1879	5		5					1	1						1	1	1			2	1				1	
1880	3		2		1			3	2					1	5	2			1	2						
1881	3	2	1					6	5					1	2	2	1									
1882	2		2					8	7					1	2	1		1	1							
1883	4		3	1				3		1		1		1	4	3	1	2	1		2	1			1	
1884	7		7					2	2						4	4		4								
1885	1		1					3	2	1					3	2	1	1		1						
1886	5		5					1	1						5	2			1	2						
1887	5		4		1			5	2		1		2	5	3	2	1		2	4			2	2		
1888	6		4		2			3	1		2			8	2	1	1	1	5	1			1			
1889	4		3		1			2	2					2	1		1		1	1				1		
1890	3	1	2					6	1	3	1			1	6	5	1	3	1		1			1		
1891	3		3					4	2			1		1	4	4	2	2		3	2	1		1		
1892								2	1					1	8	6	1	3		2	1				1	
1893	3		2		1			2			1		1	8	5	1	2	2	1	2	1	1		1		
1894	5		3	2				8	2		2		3	1	8	7	1	5		1	2				2	
1895	2		1		1										2	2	2									
Total	149	3	114	14	13	2	3	160	79	23	17	10	9	21	105	71	18	33	14	20	34	19	13	1	6	8

APPENDIX TABLE 2 (continued)

Year	700	Service								800		Finance, Insurance & Real Estate (continued)														
		710 Domestic & Personal				720		730	740	810	820	830	Mortgage			840	Investment			850	860	870				
		711	712	713	714		722*						831	832*	833*		841	842*	843*			861		871		
1856																										
1857	1								1	1																
1858	1							1																		
1859	1	1	1																							
1860										1											1	1				
1861																										
1862	1								1	7	6		1	1												
1863	2								2	9	2													6		
1864	2								2	4		1												3		
1865	1								1	5														4	2	
1866										2																
1867	2								2	1			1	1												
1868	2					1	1		1	3			1		1									1		
1869	2								2	2														1		
1870	2	1				1			1	5														5		
1871	2					1			1	6		1	2	2										3		
1872	5					1		3	1	9		3	4	4										2	1	
1873	7							1	6	6		1	2		1	1			1					2		
1874	6	3	3						3	17		3	12	9	3		2	1	1							
1875	6							4	2	12		1	10	9	1									1		
1876	6	4	4					1	1	18			12	10		1	3		1	2				3		
1877	19	7	5			2	1		2	9	27		14	13		2	3	1	2					4		
1878	18	12	11	1			1			5	15		7	1	1	2	3	1	2					2		
1879	15	6	5	1					2	7	14		3	3			4		1	3		2	2	3		
1880	16	7	7						6	3	12			5	2	1	2	2		1	1			3		
1881	8	4	2	1	1				2	2	14	1	1	4		2	1							6	1	
1882	8	1				1	2		4	1	24	6		5		1	4	2	2					11		
1883	14	4	2	2			1		4	5	14		4	1		3	2	1		1				6		
1884	13	6	2	3			1		2	5	12		5	1	2	2	3	2		1				3		
1885	7	2	1				1		5		13			5	4	1								8		
1886	10	1				1	2		1	6	15		4	1	3		5	4	1					6		
1887	12	2	2				1		5	4	16		7	4	1	2	3	2	1			1	1	4		
1888	13	2	1			1	1		10		21		6	4	1	1	3	2	1			2	1	7		
1889	14	5	4	1					7	2	15	1		4	2	1	1	4	4			1		2	1	
1890	10	1		1			1		3	5	16			5	3	1	1	1		1		1		4		
1891	21	9	4	4	1				8	4	14			4	3			1	1			1		3	1	
1892	21	3	2	1			5		6	7	13	1		2	2			3	2		1			5	1	
1893	15	7	6		1		3		3	2	20			8	8								3		5	
1894	24	6	3	3			5		6	7	23			10	5	4	1	2	1	1				7		
1895	13	6	3	2		1	1		4	2	9			3	3			1	1					3		
Total	320	100	68	20	3	9	27	1	90	103	415	18	11	150	96	25	24	48	25	12	11	2	10	5	123	7

APPENDIX TABLE 2 (continued)

Finance, Insurance & Real Estate								900	Agriculture, Forestry & Fishing												
Year	880 Real Estate			890 Others				910		Agriculture								920 Fishing			
	881	882*	883*	891*	892*			911	912*	913*	914*	915*	916*	917*		921	922	923			
1856																					
1857							2									2		1	1		
1858																					
1859																					
1860							1	1	1												
1861																					
1862							2	1		1						1			1		
1863	1	1					3	3		2					1						
1864																					
1865				1			6	4		1		2	1			2			2		
1866	1				1	1	2	1	1							1			1		
1867							1									1			1		
1868					1		1	1		1											
1869	1	1					4	2	2							2		1	1		
1870							1	1		1											
1871							2	2	1	1											
1872							3	2	2							1		1			
1873							3	3	1		1				1						
1874							4	2	2							2		1	1		
1875																					
1876							4	3	3							1			1		
1877	1	1			2		2	2		1		1									
1878	3	3					1									1			1		
1879					2		3	3	1	1	1										
1880	1		1		1	1	3	3	1				1	1							
1881	1			1	1		2	2					1	1							
1882							12	8		2		1	4		1	4			4		
1883					2		8	6		2		2	1		1	2			2		
1884							8	6		2	1		2		1	2	1		1		
1885					1		9	9		2		1	4		2						
1886							5	3	1	1			1			2	2				
1887					1		3	3		2	1										
1888	2	2			1		3	3		3											
1889					3		3	2	2							1			1		
1890	3	3			1		7	5	4		1					2			2		
1891					4		3									3	1		2		
1892					2		6	4	2	1	1					2			2		
1893	2	2			2		7	2	1						1	5	2		3		
1894					4	1	4	3	1	2						1			1		
1895	2	2					5	1		1						4			4		
Total	18	15	1	2	29	3	2	133	91	26	27	6	7	15	2	8	42	6	4	31	

FOOTNOTES

1. The research into the files of the dissolved Scottish Limited Companies upon which this study is based was made possible by a grant from the Social Science Research Council, to whom I would like to express my thanks. The abstraction of data from the files was performed by Miss Helena Sokolowski during 1976-1977: her dedication to an extremely wearisome task made this paper possible. I am greatly indebted to her. The analysis of the data took place at the California Institute of Technology, during my tenure as a Sherman Fairchild Distinguished Scholar during the academic year of 1977-78. For assistance in programming I would like to thank the staff of the Willis H. Booth Computing Center, particularly Charles B. Ray, Director of the Center, Kiku Matsumoto and Albert F. Chang. I have greatly benefited from discussion with many members of the Division of the Humanities and Social Sciences at Caltech, particularly Lance E. Davis, J. Morgan Kousser and Forrest D. Nelson. I would also like to express my thanks to the staff of the Scottish Record Office, to whom Scottish economic historians owe so much. The unstinting assistance of Mr. John Imrie, Keeper of the Records of Scotland, Mr. John Bates and Mrs. Rosemary M. Gibson is especially appreciated.
2. H. A. Shannon, "The First Five Thousand Limited Companies and Their Duration," Economic History, II (1932), p. 396. Shannon's other articles remain an invaluable source for economic historians.

- They are "The Coming of General Limited Liability," Economic History, II (1931), pp. 267-291; "The Limited Companies of 1866-83," Economic History Review, IV (1932-33), pp. 290-307.
3. See especially Geoffrey Todd, "Some Aspects of Joint Stock Companies, 1844-1900," Economic History Review, IV (1932-33), pp. 46-71. A more recent inquiry, as yet unpublished, is that of P. Cottrell, to whom I am indebted for some statistical material.
 4. The most important study has been that of James B. Jefferys, Business Organization in Great Britain, 1856-1914, (thesis for the degree of Ph.D., University of London, 1938, and since published by the Arno Press, New York, 1978). See also his article "The Denomination and Character of Shares, 1855-1885," Economic History Review, XVI (1946), pp. 45-55.
 5. W. Turrentine Jackson, The Enterprising Scot: Inventors in the American West After 1873 (Edinburgh: Edinburgh University Press, 1968), W. G. Kerr, Scottish Capital and the American Credit Frontier (Austin, Texas: Texas State Historical Association, 1976).
 6. G. Heberton Evans, Jr., Business Incorporations in the United States, 1800-1943 (New York: National Bureau of Economic Research, 1948).

7. All the files examined were of companies dissolved by 1970. The files of a number of additional companies, dissolved between 1960 and 1976, are retained by the Companies Office, Edinburgh, though stored elsewhere. It was found that the industrial distribution of companies formed before mid-1895 and still active, embodied in the statistics presented in Table 14 and Appendix 2, reflected almost exactly the distribution of the dissolved companies.
8. A witness before the Select Committee on the Companies Acts of 1862-1867, (1877), VIII, asserted that of about 7,000 companies supposedly existing in England and Wales in 1877, as many as 5,000 had failed to make the annual returns required by the Registrar at some time or other during the previous seven years. Qus. 54-57, 87-90, 92, 213-229.
9. F. Gore-Browne and William Jordan, A Handy Book on the Formation, Management and Winding Up of Joint Stock Companies, 24th edition (London: Jordan & Sons, 1902), p. 137.
10. Cf. D. H. MacGregor, "Joint Stock Companies and the Risk Factor," Economic Journal, XXXIX (1929), p. 494. "The formal dissolution of these companies may be delayed for as much as a generation, as the public statistics show; but the winding-up order terminates their operating life." An extreme example among the Scottish companies is the Garpel Hematite Co., Ltd. (BT 2/35) which was dissolved in 1932 under Section 295 of the Companies Act of 1929,

- nearly seventy years after the company had been ordered to be wound up by the courts in December 1864.
11. For the legal interpretation, see Gore-Browne and Jordan, op.cit., pp. 341-385. Shannon's clearest statement is in "The First Five Thousand . . . Companies. . . .," loc.cit., pp. 400-401.
 12. In the case of the majority of the companies being considered in this study, this took place under the provisions of Section 7 of the Companies Act of 1880. Before this Act, a company could go off the Register only by formal liquidation. Because this tended to be an expensive procedure -- or, at least too expensive for an insolvent company to contemplate -- many abortive and defunct companies remained on the Register despite their failure to submit the required annual returns. Although there were penalties for such default, the Registrar could not impose them unless the common informer took the initiative. See D. M. MacGregor, op.cit., pp. 492-493.
 13. H. A. Shannon, "The First Five Thousand . . . Companies. . . .," loc.cit., p. 401.
 14. Somewhat arbitrarily, the month of the year in which it was assumed that "death" occurred was taken as that in which the first delinquent annual submission should have been made.

15. To provide just two of the many possible examples: the Bellahouston Baths Co., Ltd. (BT 2/845), dissolved under Clause 7 of the 1880 Act, was abandoned within three months of incorporation in September, 1878, because "owing to bad times the Company did not float" (letter to the Registrar dated 1st November, 1879); the British and Foreign Corporation Ltd. (BT 2/1194) whose grandiose objectives included mercantile, agricultural, land mortgage and banking activities at home and overseas, was able to raise only one-tenth of its modest nominal capital of £10,000 and went into voluntary liquidation within nine months of its incorporation.
16. H. A. Shannon, "The Limited Companies of 1866-1883," p. 293.
17. Gore-Browne & Jordan, op. cit., p. 16. It is noteworthy that "not even the fullest sanction given by the shareholders will make valid any act which is outside the powers of the company" and undertaking such business rendered the directors personally liable for any losses sustained.
18. Ibid., p. 17. A number of examples were given: "a mining company should take power to construct railways, tramways, and canals, and not only to use them itself, but to let them out to others. . . . Similarly, a company which lends money on mortgage should have power to develop and turn to account or improve any land that may come into its possession."

19. See Appendix 1.
20. United States Central Statistical Board, Standard Industrial Classification (Washington, D. C., 1939-40), Vol. I., Parts 1-4, and Vol. II, Parts 1-3. The reason why I have chosen to model my classification on the American rather than the British Classification (Central Statistical Office, Standard Industrial Classification, London: H.M.S.O., 1968), is that for my purposes the former seemed to be more convenient and because I wished to make some comparisons with the work of G. Heberton Evans, who himself employs a variant of the Central Statistical Board's classification scheme, Evans, op. cit., pp. 50-53.
21. See above, notes 2-4 and 10. Earlier studies of joint stock companies, based on the Parliamentary returns, were made by Leone Levi. They are to be found in the Journal of the Royal Statistical Society XXXIII (1870), pp. 1-41, and XLIX (1886), pp. 214-264.
22. As a consequence, it has also been expensive compared with the traditional inspirational and intuitive methods which often provided "guesstimates" of remarkable accuracy but whose reliability was always suspect. It may be worth emphasising that the opportunity cost of the quantitative approach can be very high but it is an inevitable and necessary price to be paid if economic and social historians are to make further progress in a wide

variety of inquires. The point is well expressed by my colleague, C. H. Lee, in his elegant essay The Quantitative Approach to Economic History (London: Martin Robertson, 1977), p. 98.

23. Jefferys, "The Denomination and Character of Shares. . . .," using the Limited Liability Joint Stock Companies List, Burdett's Official Intelligence, Parliamentary Papers and a wide variety of sources, including company prospectuses and investment circulars and manuals, provides, as always, the best introduction to this subject.
24. The rules governing alterations in capital are clearly set out by Gore-Browne and Jordan, op. cit., pp. 311-329. Whereas, unless specifically forbidden by the Memorandum Articles of Association, a company could increase its capital by the passage of either an ordinary or special resolution, the reduction of capital, until expressly allowed by the companies Act of 1877, required the sanction of the Courts. Even after the Act of 1877, a reduction of capital was attended by numerous procedural complications.
25. The importance attached to the denomination of shares in a company has been emphasized by Jeffreys, "The Denomination . . . of Shares," pp. 45-55. "Probably no point ought to be more anxiously weighed," wrote an adviser to limited companies in the sixties, 'than the nominal amount of the shares into which the capital of the company is to be divided"', Loftus Fitz-Wygram, Limited Liability Made

Practical. Reduction of the Capital of Companies and the Sub-Division of Shares (London, 1867), quoted Jeffreys, ibid., p. 45.

26. The issue of shares of a different (and, invariably lower) denomination than those by which companies established themselves was fairly common. In the compilation of Table 13, the convention has been used of employing that denomination of share by which, at any one time, the majority of the capital was raised.
27. The lists had to show the names, addresses, occupations and share holdings of each member of the company.
28. It is possibly helpful to mention that the Memorandum of Association was the Charter of the company, while the Articles of Association, which governed the companies internal affairs, may be thought of as its by-laws. Unlike the Memorandum, the Articles of Association might from time to time be altered by the members without the intervention of the Court, and to an almost unlimited extent. Gore-Browne and Jordan, op. cit., p. 39.
29. To indicate the peaks and troughs of the general business cycle, I have employed the calendar-year reference dates tabulated by Arthur F. Burns and W. C. Mitchell, Measuring Business Cycles (New York: National Bureau of Economic Research, 1946), p. 79.

30. Alfred Marshall, Industry and Trade (London: Macmillan, 1919), p. 334; D. M. Macgregor, Enterprise, Purpose and Profit (Oxford: Oxford University Press, 1934), pp. 81-86.
31. G. H. Evans, op. cit., p. 88.
32. P. L. Payne, Rubber and Railways in the Nineteenth Century (Liverpool: Liverpool University Press, 1961), pp.
33. Alfred Marshall, Principles of Economics, 8th edition, (London: Macmillan, 1920), p. 590.
34. See below, p. 26.
35. A fact emphasized in 1877, VIII (419), Ques 2197-8, 2454-5, 2468-70.
36. It is almost unnecessary to mention that this somewhat bald statement hardly does justice to the legal niceties involved in the determination of when a company is deemed to be unable to pay its debts or when the Court will order a compulsory winding up. The subject is discussed by Gore-Browne and Jordan, op. cit., pp. 341-348.
37. Shannon, "The First Five Thousand. . . ." p. 402. Shannon distinguishes 220 "small" companies, with an average paid-up capital of

- under £300 only 50 of which lasted for more than three years.
38. Shannon, "The Limited Companies of 1866-1883," pp. 292-293. Todd, op. cit., p. 55, assumes 35 percent of the early London registrations to be abortive; Levi (J.R.S.S., XXXVIII, 1870) produced a similar estimate for the 1860's.
 39. Macgregor, op. cit., p. 496-497. He calculated that 30 percent and 27 percent of all the London companies registered in the decades 1893-1902 and 1902-1913 were abortive.
 40. H. A. Shannon, "The Coming of General Limited Liability," p. 268: "Scotch [sic] Law was different and better." R. H. Campbell, "The Law and the Joint-Stock Company in Scotland" in P. L. Payne, ed., Studies in Scottish Business History (London: Cass 1967), pp. 136-151, clearly shows both the differences and the superiority. See also A. B. DuBois, The English Business Company after the Bubble Act, 1720-1800 (New York: Octagon Books, 1971; a reprint of the almost unobtainable 1938 edition); and J. Robertson Christie, "Joint Stock Enterprise in Scotland before the Companies Acts," The Juridical Review, XXI (1909-1910), pp. 128-147.
 41. H. A. Shannon, "The First Five Thousand. . . ." p. 402.
 42. See below, pp. 27-28.

43. Todd, op. cit., pp. 62-63.
44. This observation is necessarily tentative because no reliable figures for English companies in existence are available. There are, for example, wide discrepancies between the Registrar's "official" figures and Todd's estimates.
45. Levi, J. R. S. S., 1870, p. 17.
46. Cf. Todd, "Some Aspects. . . ." p. 58, and Macgregor, "Joint Stock Companies. . . .," p. 498.
47. The Scottish figures may give a more favorable actuarial impression than the English by the inclusion of relatively long-lived gas and water companies (See Table 23) specifically excluded by Shannon ("The First Five Thousand. . . .," pp. 403-404), but this is partially, if not wholly, offset by the inclusion in the Scottish sample of abortive companies, a group omitted from Shannon's calculation of company survival.
48. Shannon, "The First Five Thousand. . . .," p. 404.
49. For help in the following analysis, I am indebted to Professor Forrest D. Nelson.
50. Macgregor, op. cit., p. 494.

51. Ibid, pp. 494-495.
52. Todd, op. cit., pp. 67-68.
53. Griffen, Economic Figures and Statistics, p. 120, quoted by Todd, op. cit., p. 69.
54. This statement is based on figures kindly supplied to me by Philip Cottrell.
55. I use the words "apparently" because it is difficult, if not, in the overwhelming majority of cases, impossible to prove fraud and misrepresentation from the information in the company files, even in those cases which arouse justifiable suspicions.
56. David Macmillan,
57. Shannon, "The Limited Companies of 1866-1883," p. 300. An unpublished table of English "Share Denominations, 1856-1882", prepared by Phillip Cottrell provides much more detailed information.
58. P. L. Payne, Colvilles and the Scottish Steel Industry (Oxford: Oxford University Press, forthcoming).

59. P. L. Payne, "The Savings Bank of Glasgow, 1836-1914," in Payne (ed.), Studies in Scottish Business History, pp. 173-180.
60. The investigation was based on data presented in Table 7.
61. For example, The Falkirk Joint Stock Gas Co. Ltd. had originally been constituted as a co-partnery in May, 1845.
62. For the North British Rubber Co., see W. Woodruff, "The American Origins of a Scottish Industry," Scottish Journal of Political Economy, Vol II (1955), pp. 17-32 ; W. Woodruff, The Rise of the British Rubber Industry During the Nineteenth Century (Liverpool: Liverpool University Press, 1958), pp. 143, 154, 210-11. John Dunning, American Investment in British Manufacturing Industry (London: Allen & Unwin, 1958), p. 17, states that this is the first American venture in British manufacturing industry. In fact, it is the second, Samuel Colt's London factory for the production of fire arms having preceded it five years earlier. Mira Wilkins, The Emergence of Multinational Enterprise: American Business Abroad from the Colonial Era to 1914 (Cambridge, Massachusetts: Harvard University Press, 1970), pp. 30, 259.
63. David J. C. Forsyth, U.S. Investment in Scotland (New York: Praeger, 1972).

64. For "Paraffin" Young, see W. H. Marwick, "The Limited Company in Scottish Economic Development," Economic History, Vol. IV (1937), p. 416, and John Butt,
65. For the general context, see S. G. Checkland, Scottish Banking: A History, 1695-1973 (Glasgow: Collins, 1975), pp
66. For the intimate connection between these activities in Scotland, see P. L. Payne, Colvilles and the Scottish Steel Industry (Oxford: Oxford University Press, forthcoming), Chapter IV.
67. These reasons are discussed more fully in J. B. Jefferys, Business Organization, pp. 76-84.
68. In 1874 the Benhar Coal Co. amalgamated with the Niddrie Coal Co. less than six months after the latter's incorporation. The Niddrie, like the Benhar, represented the conversion of George Simpson's colliery interests. As vendor, Simpson received 7,810 £10 shares (£2 paid) in the Niddrie. The merged concern nearly foundered in 1879 when George Simpson went bankrupt "amid charges of maladministration, if not malversation." Marwick, op. cit., p. 418.
69. For the activities of the earlier members of the Dixon family, see

Henry Hamilton, The Industrial Revolution in Scotland (Oxford: Oxford University Press, 1932), pp. 173, 184, 186, 196; P. L. Payne, "The Govan Collieries, 1804-1805," Business History, III, (1961), pp. ; A. Slaven, "Earnings and Productivity in the Scottish Coal-mining Industry during the Nineteenth Century: The Dixon Enterprises" in Payne, Studies in Scottish Business History, pp. 217-249. William S. Dixon himself was described in The Bailie (28 November, 1877) as "a quiet, unassuming gentleman, who spends his time mainly between his house in London and his delightful estate at Belleisle, near Ayr," quoted by T. J. Byres, "Entrepreneurship in the Scottish Heavy Industries, 1879-1900," in Payne, Studies in Scottish Business History, p. 270.

70. Of the total capital proposed -- £1 million in shares and £500,000 in debentures -- Merry and the trustees of Alexander Cunninghame received £330,000 in fully paid up £10 shares, 300,000 "B" 5 percent debentures and £870,000 in cash. Difficulties in meeting its cash obligations to James Merry brought about the voluntary liquidation of the company in 1876.
71. Quoted from the prospectus of Merry and Cunninghame by J. B. Jefferys, Business Organization, pp. 80-81, (the erroneous spelling of the names of both James Merry and Alexander Cunninghame has been corrected).
72. For the Atlas Works and Rowan's role in the establishment of the

Scottish Steel Industry, see Payne, Colvilles, pp.

73. See I. F. Gibson, "The Establishment of the Scottish Steel Industry," Scottish Journal of Political Economy, V (1958), pp. ; Payne, Colvilles, pp.
74. W. J. Reader, Imperial Chemical Industries: A History, Vol 1 (Oxford: Oxford University Press, 1971), pp.
75. For Guard Bridge, see Lorna Weatherill, One Hundred Years of Papermaking: An Illustrated History of the Guardbridge Paper Company Ltd., 1873-1973 (Guardbridge, Fife: Guardbridge Paper Co. Ltd., 1974).
76. The distillers and spirit merchants need not have worried: few of the temperance establishments registered in the late seventies lasted more than a year or two.
77. W. H. Marwick, op. cit., p. 421.
78. Some indication of which is provided by the massive increase in the total sum standing to the credit of depositors in the Savings Bank of Glasgow in both the Ordinary and Investment Departments, from the late nineties onward. Payne, "Savings Bank of Glasgow," pp. 155, 170, 178.

79. Among them were The North British Property Investment Co., The Northern Heritable Securities Investment Co., The Aberdeen Heritable Securities Investment Co., The Glasgow Heritable Securities Co., The Scottish Provident Investment Co., The Edinburgh Heritable Security Co., The National Property Investment Co., The West of Scotland Lands and Buildings Investment Co., The Scottish Heritages Co., and The Heritable Property Trust. Not without reason did Marwick, op. cit., p. 420, observe that "to a confusing degree almost every relevant combination of epithets was utilized in their nomenclature."
80. For a succinct explanation of why "a case can be made for the selection of 1873 as the beginning date for the modern period of Scottish overseas investment," see W. Turrentine Jackson, op. cit., pp. 8-11. Jackson's study is an indispensable guide to the subject of Scottish investment in the United States. A useful introduction to investment in Australia is provided by David S. Macmillan, "Scottish Enterprise in Australia, 1798-1879," in Payne (ed.), Studies in Scottish Business History, pp. 319-344.
81. R. E. Tyson has spent many years in disentangling the affairs of the notorious City of Glasgow Bank whose fortunes were linked indissolubly with the New Zealand and Australia Land Co. It is to be hoped that his findings will eventually be published.
82. Macmillan, "Scottish Enterprise. . . .," p. 341.

83. See S. G. Checkland, The Mines of Tharsis (London: Allen & Unwin,).
84. Marwick, "The Limited Co. . . .," p. 421, and the company files.
85. For example, The East Bengal Co. and the Champdany Jute Co. The former company returned £186.80 for every ordinary share of £100 when the firm went into voluntary liquidation in 1942. After a noteworthy career, the Scottish Indian Coffee Co. Ltd., dominated by Inverness interests, sold out to a syndicate in 1897.
86. See, particularly, W. Turrentine Jackson, op. cit., and W. G. Kerr, op. cit.
87. W. G. Kerr, "Scottish Investment and Enterprise in Texas," in Payne (ed.), Studies in Scottish Business History, p. 367.
88. Sir George Warrender's abilities were set down by John Clay, My Life on the Range (Chicago: Privately Printed, 1924), p. 14, quoted by Jackman, op. cit., p. 14.
89. J. & P. Coats adopted the company form somewhat tentatively. The first step, taken in 1884, was to convert the original partnership into an unlimited company in which nine members of the Coats family took all the shares. This company went into voluntary liquidation in order to transfer the business to a limited company in 1890.

90. J. B. Jefferys, Business Organization, p. 127.
91. Formed within a few months of each others, these two prominent shipping lines originally had almost identical boards. The Albion's consisted of Peter Denny, James Galbraith, James Nicol Fleming, William Davie, Thomas Dunlop Findlay and Robert Henderson; the Irrawaddy's was the same, with the addition of John M'Ausland, Peter Denny's partner in William Denny & Brothers of Dumbarton.
92. The State Steamship Co., floated in 1872 with a nominal capital of £1 million, was abortive. Within a few weeks of incorporation it went into voluntary liquidation so that a new company, the State Line Steamship Co. could be registered with a nominal capital of £600,000 to take over the business. This company, too, soon got into difficulties and the line's seven steamships and the goodwill of the business were acquired in 1876 by a new company, the State Steamship Co. Ltd., for a purchase price of £255,000. (The called-up capital of the State Line Steamship Co. at the time of its dissolution stood at £403,024). The nominal capital of the State Steamship Co., £300,000 at the outset, was reduced to £150,000 in 1887, and the called-up capital of £25,000, halved.
93. Shannon, "The Limited Companies," p. 306.
94. Jefferys, Business Organization, p. 70.

95. Jefferys, Business Organization, pp. 116-117, emphasizes this point.
96. Marwick, "The Limited Company," pp. 428-429.
97. This point has been made elsewhere, see Payne, "Industrial Entrepreneurship," pp. 674-675, note 131.
98. This figure has been estimated on the basis of the known nominal capital of the companies in existence at the end of year 1894 which were subsequently dissolved to which has been added an estimate of the nominal capital of the companies formed in 1895 plus an estimate of the nominal capital of those companies formed between 1856 and 1895 that were still in existence in 1975.
99. The called up capital represents the amount subscribed by the public in calls plus the amount considered as paid up on vendors' and other shares.
100. See above, page p. 15.
101. Jefferys, Business Organization, pp. 101-102. For a detailed study of the causes and consequences of the failure of the City of Glasgow Bank, we must await the forthcoming study by R. E. Tyson.

102. The files of the Scottish banks are curiously incomplete. Only a few S.C.A.S. returns are contained therein and the other data are inexplicably fragmentary. It is worth noting that the Commercial Bank of Scotland and the Clydesdale Bank were also incorporated in 1882.
103. Macgregor, "Joint Stock Companies," pp. 501-502.
104. Ibid., p. 503, c.f. Jefferys, Business Organization, pp. 75-76, 130-131, and Appendix E, pp. 458-460.
105. G. R. Hawke and M.C. Reed, "Railway Capital in the United Kingdom in the Nineteenth Century," Economic History Review, 22 (1969), p. 272. More precisely the annual figures (in millions of £s) for the early 1890s are: 1890, 95.7; 1891, 97.3; 1892, 99.6; 1893, 102.3; 1894, 104.2; 1895, 106.2.
106. It may be objected that a significant proportion of this capital probably came from south of the border. This is agreed (though cursory glances at the shareholders' lists of the companies considered in this paper give an overwhelming impression of local recruitment of capital), but it was almost certainly more than offset by investments by Scots in London-registered companies.
107. I find myself in greatest sympathy with the ideas put forward by Michael Edelstein, "The Determinants of U.K. Investment

- Abroad, 1870-1913: The U.S. Case," Journal of Economic History 34 (1974), pp. 980-1007.
108. A number of examples are provided in the author's study of Colvilles and the Scottish Steel Industry, passim
109. Jefferys, Business Organization, pp. 147-151, Appendix B, pp. 452-453.
110. The early company files do not provide data sufficiently comprehensive to measure this dominance.
111. The major obvious exceptions to this were in the fairly rare instances in which the board of an ailing company would call up capital in a desperate and invariably vain attempt to save the company from bankruptcy. In such cases, the paid up capital suddenly rose (though not dramatically, since most shareholders tended to be wary in these circumstances) towards the very end of a sick company's life, only to be lost in the ensuing liquidation.
112. The figures in Col. 4, Table 20, "Capital raised by existing companies" are net of capital written down. Sometimes, as in the early nineties, this amount (plus the sums returned to the shareholders as being "in excess of the wants of the company") exceeded the capital raised by existing companies. The writing

down of share capital and the return of capital to shareholders was largely confined to overseas ventures (mainly cattle and land companies) and shipping companies. A careful estimate indicates that the total amount so lost between 1876 and 1895 was about £3.2 million. Large sums were repaid to shareholders by several overseas ventures as a preparatory step to voluntary liquidation.

113. MacGregor, *op.cit.*, pp. 550-501; and see the illuminating discussion by Michael Edelstein, "Realized Rates of Return on U.K. Home and Overseas Portfolio Investment in the Age of High Imperialism," Explorations in Economic History 13 (1976), pp. 296-298.
114. See above, p. 21.
115. Shannon, "The First Five Thousand. . . .," p. 410. Shannon quotes Alfred Marshall, Principles of Economics, 8th ed. (London: Macmillan,), p. 316; "And as with the growth of trees, so was it with the growth of business as a general rule before the great recent development of vast joint stock companies which often stagnate but do not readily die."
116. P. E. Hart and S. J. Prais, "The Analysis of Business Concentration: A Statistical Approach," Journal of the Royal Statistical Society, Ser. A, 119 (1956), pp. 168-175.

117. See particularly, L. Hannah and J. A. Kay, Concentration in Modern Industry (London: Macmillan, 1977), chapter 7, "The Gibraltar Effect," pp. 98-110.
118. It was from the outset appreciated that called-up capital is not entirely satisfactory as a criterion of size, but it was the only criterion common to the company file data and most authorities recognize that issued, even nominal, capital does constitute a reasonable, if somewhat rough, indication of relative size. In the context of this paper, the fullest discussion of this question is that by G. H. Evans, *op.cit.*, pp. 42, 172-174.
119. Very little was expected of calculations based upon this latter figure since a company incorporated in, say, February, would have had a much greater opportunity to raise its required capital than a company incorporated late in November or in December.
120. I must, once again, express my indebtedness to Professor Forrest D. Nelson for invaluable assistance in carrying out these computations.
121. It is worth emphasizing that when a firm went into voluntary liquidation for reconstruction, sale or amalgamation, it officially "died" (i.e. it was dissolved), even though it may have enjoyed a continuing existence under another name or in a different organizational or structural form.

122. It is not known whether a different result would have been produced had it been possible to overcome the informational inadequacies and technical difficulties involved in assuming continuity between firms of the same or of a similar name but of a changing legal form and composition. (It would involve the assumption, for example, that the Clyde Tube Works, A. & J. Stewart, A. & J. Stewart Ltd., incorporated as a private company in 1882, A. & J. Stewart and Clydesdale Ltd., 1890, A. & J. Stewart & Menzies Ltd., 1898, and Stewarts & Lloyds, 1903, were essentially one and the same firm [for the antecedents of Stewarts & Lloyds, see Payne, Colvilles and the Scottish Steel Industry, pp.]). One can hardly avoid the presumption that it would, but one cannot be sure.
123. See Hannah and Kay, op.cit., pp. 98-100.
124. Shannon, "The Limited Companies," p. 295, and see p. 302.
125. Economist 37 (1879), p. 1254, quoted by Shannon, "The Limited Companies," p. 295n.
126. M. Edelstein, "Realized Rates of Return on U.K. Home and Overseas Portfolio Investment," p. 286.
127. Ibid., p. 287. Because of data limitations, Edelstein was forced to restrict his attention to a relatively narrow range of

- publicly traded, first- and second-class equity, preference, and debenture instruments.
128. Where inspection of the ledgers of nineteenth century Scottish private companies has been possible, the annual dividends that they reveal were, at times, surprisingly high, frequently exceeding 15 percent.
129. Edelstein, "Realized Rates of Return," p. 291. The general magnitude of these figures is broadly confirmed by the fragmentary data contained in the files of the dissolved Scottish companies.
130. This figure is based upon a number of admittedly rough calculations which took into account (i) the general direction of Scottish joint stock activity (i.e. its distribution between major industrial groups and between domestic and overseas ventures), (ii) the average length of life of Edinburgh-registered companies, (iii) the estimated capital losses incurred through liquidations -- all of which have been previously discussed -- and (iv) the spotty dividend and balance sheet data derived from the company files and from other primary and secondary sources. The biases embodied in these somewhat crude attempts to assess the general magnitude of the net return to shareholders have been downwards.
131. The Rousseaux Price Indices, reproduced in B. R. Mitchell,

Abstract of British Historical Statistics (Cambridge: Cambridge University Press, 1962), pp. 472-473, reveal a markedly falling price trend during the period covered by this paper, especially from the early seventies onwards. This would have increased the real value of the return on investment which would have been only partially offset by increases in the real value of capital losses.

132. A parallel study of the Scottish Stock Exchanges is being undertaken by Ranald C. Michie of the University of Durham.
133. Belief in the validity of this point has been encouraged by an observation by Macgregor, op.cit., pp. 503-504, that "Taking only the nominal capitalizations of all companies registered in 1890, the five-year survival is only two points percent worse for all companies capitalised at over £20,000 than for all companies capitalised at over £100,000."

TABLE 18

SINGLE-SHIP COMPANIES, INCORPORATED BETWEEN 1885 AND MID-1895,
MANAGED BY JOSEPH P. MACLAY & THOMAS W. M'INTYRE, GLASGOW

Reg. No. BT2/	Name of Steamship Company	Date of Incorporation	Nominal Capital (£s)	Maximum Called-up Capital (£s)	Date of Dissolution ¹	Notable Subscribers and Shareholders ²	Vessel Built (B) or Purchased	Management Salary (£s Per Annum)	Remuneration Share of Net Profits
1456	Gordon	April 1885	21,000	16,100	June 1919	James S. Napier, Iron Merchant; John Stephen, Shipbuilder	B: Alex Stephen & Co.	n.d.	n.d.
1677	Victoria	October 1887	20,000	16,600	October 1917	J.B. Smith, Iron Founder John Stephen	B: Alex Stephen & Co.	n.d.	n.d.
1720	Domira	March 1888	20,000	19,000	June 1919	James Napier, Iron Merchant; James Stevenson, Merchant	B: Alex Stephen & Co.	n.d.	n.d.
1859	Mangara	June 1889	20,500	20,000	October 1916	W. Macadam Smith, Iron Founder; John Stephen	B: Alex Stephen & Co.	200	10%
1861	Nyassa	June 1889	25,500	22,500	November 1914	W. Macadam Smith; John Stephen; British Investment Trust	B: Alex Stephen & Co.	200	10%
1883	Samara	July 1889	20,500	20,000	October 1916	W. Macadam Smith; James McMurray, Paper Maker	B: Mackie & Thomson	200	10%
2117	Mereddio ³	February 1891	14,720	14,720	June 1919	James Napier; James R. Sloan, Manufacturer; W. Wilson, Iron Merchant	Purchased	200	10%
2118	Meraggio ⁴	February 1891	9,280	9,280	June 1914	James Napier; George G. Napier, Iron Merchant; James R. Sloan; W. Wilson	Purchased	200	10%
2119	Mersario ⁵	February 1891	16,960	16,960	October 1915	James Napier; George G. Napier; James R. Sloan; W. Wilson	Purchased	200	10%
2120	Merannio ⁶	February 1891	8,640	8,640	February 1917	James Napier; George G. Napier; James R. Sloan; W. Wilson	Purchased	150	10%
2312	Uganda	April 1892	27,000	22,000	October 1916	James S. Napier; John Stephen	B: Alex Stephen & Co.	200	10%