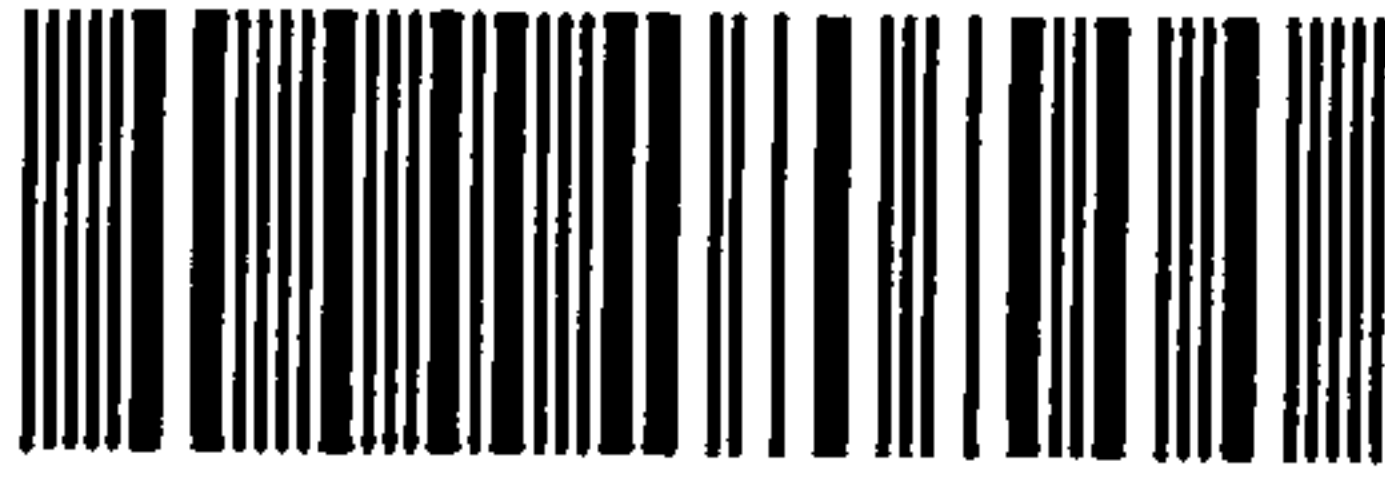


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MORTALITY, PUBLIC HEALTH AND MEDICAL IMPROVEMENTS

IN GLASGOW 1855-1911

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Introduction

In the mid-1950's McKeown and Brown advanced a controversial thesis concerning the effectiveness of medical measures available in the eighteenth century (1). Hitherto it had been widely believed that the rise of population in England and Wales in the eighteenth century had been the result of a fall in mortality partly due to medical improvements such as the growth of hospitals and advances in medical knowledge, a view that had been put forward by Griffith in the 1920's (2). McKeown and Brown argued that hospitals probably did more harm than good and that contemporary medical treatment, with the possible exception of inoculation and vaccination against smallpox, was of little value. They pointed out that surgery, before the introduction of anaesthesia and antisepsis, was very unsafe and the results of surgical procedures very poor; that in the field of midwifery the introduction of institutional confinements carried greater risks than home deliveries; and that few of the drugs then available were of therapeutic value. They concluded that eighteenth century population growth was not caused by a rise in the birth rate but by a reduction in the death rate probably caused by a decline in the incidence of infectious diseases due primarily to improvements in living conditions and to a lesser extent to changes in the virulence of certain diseases (3). In a later paper McKeown and Record extended the analysis to 1900 and concluded that the decline in mortality in the second half of the nineteenth century was largely due to improvements in the standard of living, particularly to improvements in diet; hygienic changes introduced by the sanitary reformers accounted

1. T. McKeown & R.G. Brown, "Medical evidence related to English population changes in the eighteenth century", Population Studies, IX (1955).
2. G.T. Griffith, Population Problems in the Age of Malthus (Cambridge, 1926).
3. McKeown & Brown, op.cit.

for the decline of typhus, typhoid and the diarrhoeal diseases, while changes in virulence of the causative organism accounted for the decline of scarlet fever (1). They suggested that medical treatment in the nineteenth century had an insignificant impact on mortality; the only effective prophylaxis available was for smallpox and this was responsible for only a small part of the decline in the death rate (2). These conclusions have been questioned; Razzell has argued that the introduction of inoculation against smallpox in the eighteenth century was a major factor contributing to the decline in mortality (3) and Sigsworth, Cherry, and Woodward have stressed from studies of individual hospitals that conditions in voluntary hospitals were better than McKeown and Brown had suggested, particularly in the late eighteenth and early nineteenth century, that surgical mortality was not as high and that a high proportion of patients were discharged "cured" or "relieved" (4).

The object of this study is to test McKeown's thesis at the local level by considering the relationship between mortality and hospital, medical, and public health provision in Glasgow 1855-1911. Unlike McKeown's studies, use has been made of detailed local sources relating to the hospital, public health and other medical institutions in the city. Minutes and reports of voluntary hospitals and dispensaries have been examined as well as minutes of committees of two of the Glasgow poorhouses and reports and minutes of the committee of health, the sanitary department and the infectious disease hospitals. Mortality rates in Victorian

1. T. McKeown & R.G. Record, "Reasons for the decline of mortality in England and Wales in the nineteenth century", Population Studies XVI, (1962).
2. McKeown & Record, op.cit.
3. P. Razzell, "Population change in eighteenth century England: a reinterpretation", Economic History Review, 2nd ser. XVIII, 2 (1965).
4. E.M. Sigsworth, "Gateways to death? Medicine, hospitals and mortality 1700-1850", in P. Mathias, ed., Science and Society, 1600-1900 (Cambridge, 1970).
S. Cherry, "The role of the provincial hospital; the Norfolk and Norwich Hospital, 1771-1800", Population Studies, 26, 2 (1972).
J. Woodward, To Do the Sick No Harm (1974).

Glasgow were exceedingly high but they did fall in the period under consideration; despite the evident gross poverty and poor living conditions a considerable saving of life was achieved in the second half of the nineteenth century. This study attempts to identify the major diseases contributing to the mortality decline in Glasgow and in Scotland and to discover how the mortality experience of a large industrial city like Glasgow differed from the national pattern.

The first chapter of the study is concerned with the general economic background of Glasgow and the growth and development of the city in the nineteenth and early twentieth centuries. Subsequent chapters discuss the Scottish system of vital registration, the mortality pattern in Glasgow and Scotland, the public health administration of Glasgow, the voluntary, poor law, and municipal hospitals of the city. Dispensaries and such medical services as district nurses, general practitioners, poor law medical officers, and vaccination are also considered. The standard of living, especially housing and dietary standards, is examined and the final chapter summarizes the factors responsible for the decline in mortality from the diseases that were major causes of death. The conclusion that emerges from this study confirms the view of McKeown and his colleagues for England and Wales that the decline of mortality in Glasgow in this period was largely unrelated to medical care and public health provision. Improvements in the standards of living, particularly in standards of housing and diet were probably more directly related to the mortality decline.

1. The Growth of Glasgow

(i) Economic and Social Development : An Outline

Glasgow was founded by St. Mungo in the sixth century as an ecclesiastical settlement. By the time of the Reformation and the abolition of the episcopacy in 1638 the original essentially ecclesiastical character of the city had changed ⁽¹⁾. Situated on a river ford at the lowest bridging point of the river Clyde seventeenth century Glasgow had already become important as a focus for coastal and inland trade. Despite this, Glasgow at the beginning of the eighteenth century was still little more than a small provincial burgh bounding an ancient cathedral and university and boasting nothing more than some craft industries, sugar refining, and a small woollen and linen textile industry ⁽²⁾. During the eighteenth and nineteenth centuries, however, a complete transformation occurred in the character of the community ⁽³⁾.

The origins of the transformation go back to the Act of Union of 1707. Taking advantage of Scotland's new won right to participate in trade with England's colonies ⁽⁴⁾, Glasgow merchants were able to capitalize on the Clyde's westerly position and the shorter voyage to the colonies (compared with rival English ports), and quickly came to dominate the trade with the American colonies in tobacco. Throughout much of the first three quarters of the eighteenth century, Glasgow's prosperity rested heavily on the entrepot trade in tobacco. It gave rise to the city's first mercantile elite and encouraged the growth

1. J. Sinclair, The Statistical Account of Scotland, V, (Edinburgh, 1793), p.492 (hereafter O.S.A.).
2. J.B.S. Gilfillan & H.A. Moisley, "Industrial and Commercial Developments to 1914", in R. Miller and J. Tivy, eds. The Glasgow Region (Glasgow, 1958), pp.153-5.
3. A. Cairncross, "The economy of Glasgow", in Miller and Tivy, op.cit, p.221.
4. R.H. Campbell, Scotland Since 1707 (1971), p.39.

of a range of local industries producing all manner of goods to be sent out to the Americas in the ships that later returned laden with tobacco and other colonial products.

Although the American War of Independence dealt the colonial tobacco trade a severe blow the local economy was strong enough to take it. Agriculture had been improved. Local industries had expanded and diversified. The Statistical Account of 1793 refers to "the variety of manufactures" carried out in Glasgow which included the production of carpets, silk gauze, Delft ware, ropes and cordage, and the manufacture of cotton cloth ⁽¹⁾. The trade had given to Glasgow and the west of Scotland an infrastructure of banks, marine insurance, docks and warehouses that could be put to other uses ⁽²⁾. More significantly, merchant capitalists whose fortunes had been earned in the tobacco trade, searching for new outlets, provided much of the capital which underlay the growth of the cotton textile industry, an industry which added a further dimension to the city's economy ⁽³⁾.

The production of cotton textiles developed from the linen industry with entrepreneurs (some like Monteith and David Dale came themselves from the linen industry) making use of local skills and importing the technology of mechanised cotton spinning (and later of cotton weaving) from England. Cotton mills were built in the hills of western Scotland, where water power was available. Most were within twenty-five miles of Glasgow and thus had access to supplies of raw cotton which were imported from America through the city and to Glasgow's yarn merchants who controlled the domestic hand loom

1. O.S.A., p.492.

2. T.M. Devine, The Tobacco Lords (Edinburgh, 1975), p.172.

3. T.M. Devine, "The colonial trades and industrial investment in Scotland, c.1700_1815", Economic History Review, 2nd ser. XXIX, 1, (1976).

weaving of cotton throughout the surrounding area. In 1791 it was estimated that they employed some 15,000 looms and some 135,000 people in all in the various stages of cotton manufacture (1). Weaving communities sprang up both around Paisley, the other textile centre in the region, and Glasgow; Bridgeton, Anderston, and Calton in Glasgow were all originally weaving villages. There was a readily available supply of labour for the cotton mills in migrants from the Highlands and from Ireland.

From the beginning of the nineteenth century steam engines were introduced to power the mills, which meant that cotton spinning was no longer tied to water power. Mills began to spring up actually within Glasgow. There were also other important innovations. The mechanisation of weaving had proved to be more difficult than spinning but by the end of the first decade of the new century power looms were in use in the city's mills. By 1846 it was estimated that there were 15,127 steam looms in the city and suburbs and 18,537 hand looms (2), and by the mid-1850's there were 39 cotton spinning factories in Glasgow, 37 cotton weaving factories, and 17 weaving and spinning factories employing, in all, some 24,000 operatives (3). At first power looms were used only for producing coarse cloth but as their use was extended the impact began to be felt in the hand loom weaving communities which were oversupplied with recruits coming into the industry from rural areas; as a result weavers' wages declined (4).

The cotton industry grew rapidly in the forty years after 1790, thereafter progress was less hectic. The mills now possessed improved

1. O.S.A. op.cit., p.502.
2. New Statistical Account of Scotland, VI (Edinburgh, 1845), p.154 (hereafter N.S.A.).
3. F.H. Groome, Ordinance Gazetteer of Scotland (Edinburgh, 1886), p.122 & J. Hume, Industrial Archeology of Glasgow (1974), pp.25-37.
4. A. Slaven, The Development of the West of Scotland 1750-1960 (1975). pp.103-4.

machinery that could be easily operated and they turned increasingly to cheap female and child labour. There was little employment available for the men other than hand loom weaving until the coal and iron industries developed. The industry faced growing competition from Lancashire in home markets and abroad and there was also competition from nascent foreign cotton textile industries. There was a slump in the industry in the late 1830's but the major crisis came with the failure of the Western Bank in 1857 and the collapse of several cotton firms, notably those involved in the large sewed muslin industry which was based in Glasgow and employed a large number of female domestic outworkers in the city and neighbouring counties. The commercial crisis was compounded by the failure of the supply of raw cotton in the American Civil War and the industry never really recovered. Thereafter cotton production declined. By the end of the century more of Glasgow's textile workers were employed in the carpet making industry (which had been founded in the late 1830's) than in cotton manufacture⁽¹⁾. The empty mills in the old cotton districts of Bridgeton and Anderston were adapted for other purposes⁽²⁾.

The development that now transformed the economy of Glasgow and Clydeside was the rise of heavy industry. The demand for coal in the region had first come from the forges of the small local iron industry and later from the steam engines of cotton mills. The growing demand for coal led to improvements in transport. The major canals of the

1. Gilfillan and Moisley, op.cit, p.180.
2. Cotton mills were used as carpet factories, the Singer Sewing Machine Co. started life in Glasgow in a mill in Bridgeton before it moved to Clydebank, and on one occasion a cotton mill in Anderston was fitted up for use as a temporary fever hospital, see below p.102.

region were started in the 1760's but were not completed for another twenty years. The Monkland canal was built to carry coal into Glasgow and reduce its cost and it became the main means of transporting fuel from the Monklands coal field in the first half of the nineteenth century. It was joined to the Glasgow terminus of the Forth and Clyde canal at Port Dundas and so there was a link by canal to Grangemouth on the east coast and west via Maryhill to the Clyde at Bowling ⁽¹⁾. As heavy industry's demand for raw materials grew, a network of railways was constructed opening up the Lanarkshire and the Monklands coal fields. By the 1840's Glasgow was linked by rail to many of the large Scottish cities and by the 1850's with London.

Until Neilson's hot blast technique was introduced in 1828, however, the west of Scotland iron industry was uncompetitive and possessed no advantage over its English rivals. With the introduction of heated blast it was possible to use local blackband ironstone and local splint coal to produce pig iron more cheaply than English pig. Thereafter the iron industry developed rapidly with blast furnaces being built throughout Lanarkshire. There were many by the Monklands Canal at Coatbridge and close to Glasgow there was Dixon's Blazes at Govan. Scottish iron production supplied the growing demand for iron in the railway boom of the 1840's, most was exported but some was used in local forges, in metallurgy, engineering and shipbuilding. Pig iron production reached its zenith in the 1870's and then began to falter as local supplies of cheap raw materials became exhausted and competition from the north east of England grew in both national and international markets. By the early 1900's only some fifth of the iron produced was being exported and the industry was stagnating and failing to innovate.

1. Slaven, op.cit, pp.35-6.

The Scottish steel industry never possessed the special advantages that the early iron industry had enjoyed. Ore had to be imported and the technology of the industry was largely borrowed. Production began in the 1870's and was centred on Motherwell. Within Glasgow itself the Blochairn Ironworks on the Monklands Canal and Parkhead Forge were converted to steel production in the 1880's. The Scottish industry was never really competitive with the steel industry of the north east of England. It concentrated instead on producing open-hearth steel for local shipbuilding and it never really existed independently of this industry (1).

The industry which dominated Glasgow and Clydeside in the sixty years leading up to the first world war was shipbuilding. The development of this industry on the Clyde was made possible by the great improvements that were made in the river's navigability. Glasgow was separated from the open firth at Greenock by twenty two miles of wide, shallow, meandering river (2) and was navigable by only small shallow-draught vessels. Goods destined for Glasgow were transhipped at Dumbarton or Greenock and, from the end of the seventeenth century, from the new port that the city built downstream, Port Glasgow. Major attempts to improve the navigability of the river began in the 1760's and continued throughout the nineteenth century, whereas in 1825 the low tide water depth at the Broomielaw was only 7-8 feet enabling vessels of up to 300 tons to dock, by 1857 the 3,600 ton Cunard liner India was able to berth in the city (3). A contemporary visitor noted that the Clyde "from being a narrow winding stream unfit for the navigation of any craft

1. Campbell, op.cit., p.235.

2. C.R. Fay, Round and About Industrial Britain 1830-60 (1952), p.140.

3. *ibid.*

above the size of a cockboat, has been converted into a noble river" carrying "thousands of the mighty leviathans of the deep ..." (1).

By the 1880's a channel giving 20 feet of depth at low water had been made. It was therefore possible to launch ships of ever increasing tonnage from the yards on the banks of the Clyde and for the largest vessels of the day to reach the city.

The Clyde had not been noted for shipbuilding until the advent of steam power. It was after Bell had demonstrated his steam powered Comet in 1812 that local shipbuilders started to build steam powered vessels and from these beginnings the Clyde emerged as the leading shipbuilding river in the country. At first local builders constructed ships that were engined by one of the mechanical engineering workshops which had sprung up in the old cotton districts of Glasgow. Later some of these engineers themselves went into shipbuilding moving from their original workshops or foundries to ship yards on the banks of the Clyde. Robert Napier moved from his Lancefield Foundry in Finnieston to a shipbuilding yard at Govan and Charles Randolph from Tradeston to a yard at Govan. By the 1830's the Clyde produced nearly a quarter of Britain's steam tonnage, by the 1850's two-thirds, and by the 1870's some 70% of British tonnage was being built on the Clyde. The proportion remained as high as 50% until the first world war (2). Iron had replaced wood in ship construction in the late 1820's and this in turn was replaced by steel. Local engineers pioneered many important innovations in marine engineering, notably the haystack boiler and, later, the compound marine engine. Fuel economies were now possible and so larger and faster ships could be built. By the first world war the Clyde was the

1. J.D. Burn, Commercial Enterprise and Social Progress (1958), p.101.
2. Slaven, op.cit., pp.127 & 133.

leading shipbuilding river in the country and Glasgow was the centre of a complex of heavy engineering industries which supplied not only shipbuilding but also the other engineering concerns that had developed with the local skilled labour force that was now available. One of the largest locomotive building industries developed in the city and there were firms making many other engineering products; sugar refining equipment, electrical equipment and textile machinery, to name but a few.

There was also a heavy chemical industry in Glasgow which had grown from early beginnings in textile manufacture. At the end of the eighteenth century a way of replacing the traditional techniques of bleaching cloth was being sought. Existing methods were at the mercy of the weather and required large bleach fields. Various chemical processes were used to overcome this problem and in 1799 Charles Tennant developed dry bleaching powder ⁽¹⁾ and began producing it at his works at St. Rollox. By the 1850's it was one of the largest chemical plants in the world employing some thousand men ⁽²⁾. In the 1870's Glasgow was one of the country's largest centres of chemical production but in the 80's the industry began to face growing competition from Cheshire chemical companies which were adopting more advanced and economical methods of producing alkalis. The Scottish alkali producers found it increasingly difficult to compete and production had ceased by the first world war.

The effect of economic growth and diversification on levels of employment and incomes in Glasgow in the eighteenth and nineteenth centuries are not easy to measure in the absence of extensive reliable data. The scale of migration into Glasgow and the rest of the west of

1. N. Crathorne, Tennant's Stalk (1973).
2. J. Hume, "The St. Rollox chemical works" Industrial Archeology, III (1966).

Scotland in the first half of the nineteenth century (accounting for some 40% of total population growth between 1801 and 1841 ⁽¹⁾), is indicative of the growing employment opportunities that were opening up in the region. During the second half of the century, except in handweaving and at times of cyclical depression, there do not seem to have been any long period of widespread unemployment in Glasgow. The first decade of the twentieth century, however, was a period of more chronic, persistent, depression and unemployment: depression in the cotton textile industry was compounded by the effect of growing competition on the city's other basic industries, shipbuilding, the heavy industries of iron and steel, and chemicals.

Real wages of working people rose very little between 1800-30 and only in the 1860's was there a significant improvement ⁽²⁾. The period 1870-1900 saw a broad advance particularly in the years of falling commodity prices in the 1870's, 80's and 90's. The rise was of the order of some 40-45% in the years 1880-96 with the greatest increase taking place in the building, mining and engineering industries rather than in textiles. In the first thirteen years of the new century, however, wages barely kept pace with rising prices and for many, if not most, people there was a decline in real income ⁽³⁾.

1. Slaven, op.cit., p.141

2. Ibid., p.158.

3. Ibid. p.256, for detailed discussion of real wages and standards of living see below pp. 316-347.

(ii) Population Growth

The industrial development of Glasgow was accompanied by an unprecedented rise in the city's population. There was no national census before 1801 but several estimates of the population of Glasgow were made in the eighteenth century. Dr. Webster's enumeration which was carried out for the Ministers' Widows Fund in 1755 gives 23,546 as the population of the city and suburbs; the city's magistrates estimated the population of the royalty of Glasgow to be 36,139 in 1785 and 41,777 in 1791 with a further 20,000 people living in the adjoining suburbs ⁽¹⁾. The population had doubled, therefore, in the second half of the eighteenth century.

Table I. The population of Glasgow 1801-1911

	<u>Size</u>	<u>Rate of growth per decade (%)</u>
1801	77,385	-
1811	100,749	30.1
1821	147,043	45.9
1831	202,426	37.6
1841	274,324	35.5
1851	329,097(a)	19.9
1861	395,503	20.1
1871	477,732	20.7
1881	511,415	7.0
1891	565,839(b)	10.6
1901	761,709(c)	34.6
1911	784,496(d)	2.9

(a) Municipal area as extended in 1846.

(b) Old Glasgow.

(c) Includes the area added by the City of Glasgow Act, 1891, see below.

(d) Includes Kinning Park.

1. O.S.A. op.cit., pp.509-11.

As Table I shows the rate of population growth was most rapid in the first forty years of the nineteenth century, increasing on average by more than a third in each decade. In the second half of the century population grew much more slowly. The very rapid rate of growth in the early decades led to the appalling overcrowding that existed in Glasgow which provided ideal conditions in which fever and other infectious diseases could flourish. Slower population growth in the second half of the century made the task of the new public health authorities, who were tackling the sanitary problems of the city, less difficult. The population had increased by a factor of four between 1801 and 1851 but only doubled between 1851 and the turn of the century ⁽¹⁾.

The increase in population was due to a combination of natural increase and migration (Table II).

Table II. Balance of migration into and out of Glasgow and its suburbs, 1861-1911.

	Net increase in population (000's)	Excess of births over deaths (000's)	Balance of migration (000's)	Migration to Glasgow (000's)	Migration to Suburbs (000's)
1861-1871	119.6	55.0	+64.6	+41.0	+23.6
1871-1881	102.9	79.1	+23.8	-38.0	+61.8
1881-1891	103.8	93.1	+10.7	-11.0	+21.7
1891-1901	140.1	102.6	+37.6	+28.3	+9.3
1901-1911	27.8	118.8	-91.0	-82.6	-7.4

As Table II shows the rate of migration fell between the 1860's and 1890, rose in the 1890's, and there was a loss on balance of migration

1. Some of the population increase was due to extensions of the city boundary, particularly those that took place in 1846 and 1891. This makes it difficult to estimate the population growth of the city within its 1891 boundary (the last major boundary change in the period under consideration).
2. Reproduced from A.K. Cairncross, Home and Foreign Investment, 1870-1913 (Cambridge, 1953), p.23.

in the first decade of the new century. The fall in migration in the 1880's was probably a result of the depression that came in the wake of the failure of the City of Glasgow Bank in 1878. In the economic depression of 1901-11, however, people actually had to look for employment elsewhere and Glasgow began to lose population, a loss that was only counter balanced by natural increase.

Many of the migrants to Victorian Glasgow came from the Highlands and from Ireland. The number of Irish born people in Scotland increased throughout the years 1851-80 probably reaching a peak in 1881 ⁽¹⁾. These were the years that followed the Irish famine of the 1840's which had resulted in a mass exodus from Ireland. In 1881 13% of the population of Glasgow was Irish-born, 4% had been born in the Highland crofting counties, and of the Scottish-born population of the city only two thirds had been born within Glasgow itself. By 1911, only 7% of the city's population was Irish-born and 3% came from the Highland crofting counties; 62% of the population had been born within the city ⁽²⁾. A large influx of poor rural migrants who are unused to urban life is bound to create problems and this was certainly the case in Glasgow. Keeping pigs, for example, presents few public health difficulties in the country but in a crowded city it is a different matter. The poor Highlanders and Irish tended to go to the bottom of the social ladder in Glasgow, taking the unskilled, casual jobs. The Irish who came to the city in the 1830's and 40's moved into the old parts of the town and earned a living as labourers, hand loom weavers, or as operatives in the cotton mills. In the 1830's, for instance, 700 of the thousand stevedores in the Glasgow docks were Irish and later immigrants found similar

1. A.K. Cairncross, The Scottish Economy (1954), p.15.

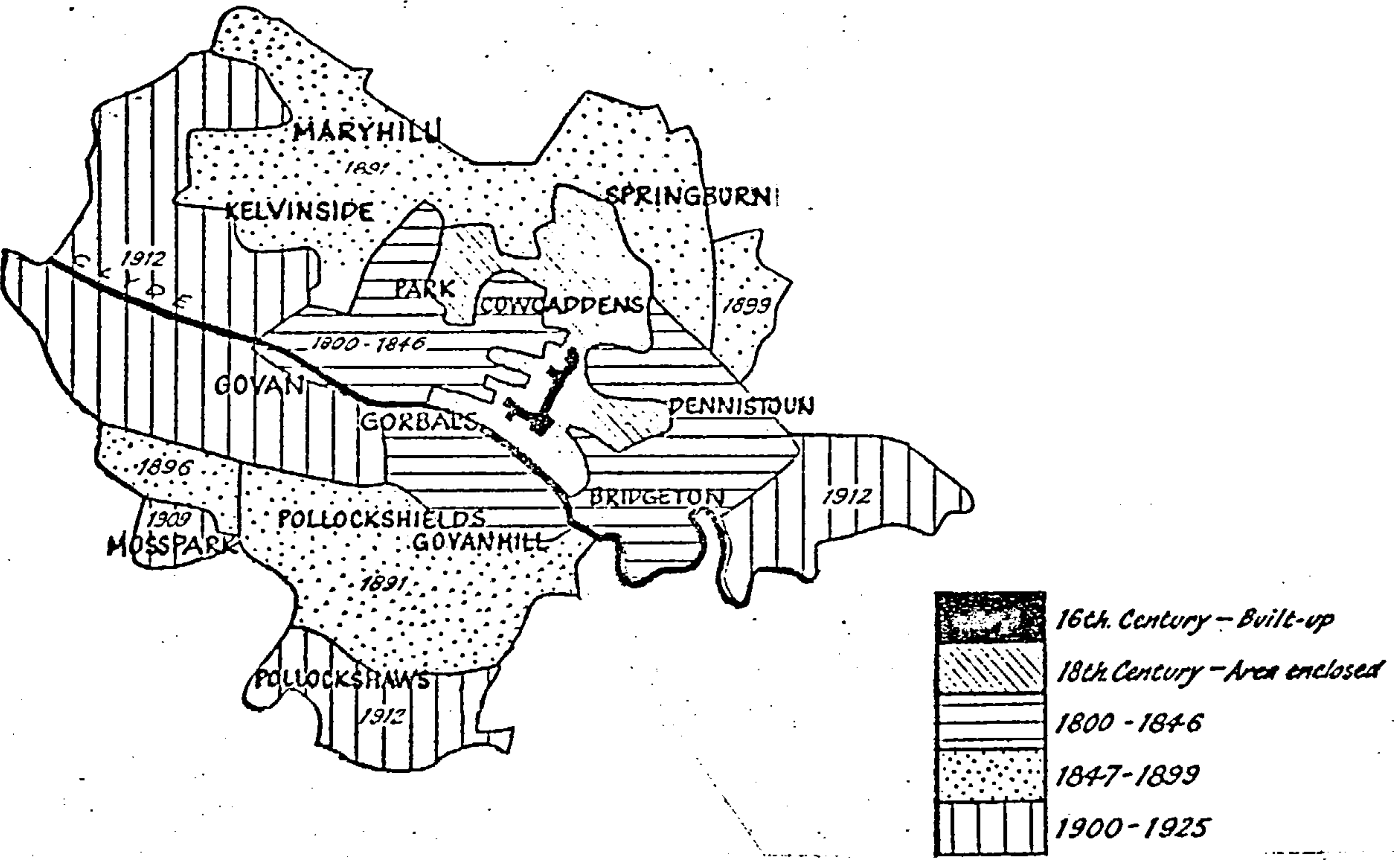
2. 3rd S.A. op.cit., p.67.

semi-skilled or unskilled jobs in the city's iron works and shipyards, on the stations, and in the markets (1). As they took the ^a least desirable, casual jobs, the immigrants tended to congregate in the worst housing in central areas. This concentration of impoverished rural immigrants in the worst housing in the city only exacerbated the gross overcrowding in the insanitary wynds and back lands which so horrified observers like Edwin Chadwick.

Table II also shows the movement from the city to the suburbs in the 1860's and 70's which was a result of the reduction in the city's housing stock by clearances made in the central areas.

1. J.E. Handley, The Irish in Scotland, 1798-1845 (Cork, 1945), p.127. & The Irish in Modern Scotland (Cork, 1947), p133.

The growth of Glasgow. (1)



1. Adapted from J.R. Carson et al, Glasgow and the Clyde (Glasgow, 1970)

(iii) The Geographical Extent of Glasgow

In the years of the tobacco trade the district around the Tolbooth and the Tontine Coffee House was the centre of commercial and social life in the city and most of the retail and wholesale businesses were in the "Golden Acre" around Glasgow Cross ⁽¹⁾. With the development of the textile industry in Calton and Bridgeton to the east of Glasgow Green and across the Clyde in Tradeston the merchants of the city who had hitherto lived above their places of business moved into the new residential streets and squares by the Green and to the new grid of streets that was developed away from the mills and tenements of the factory districts to the west. Here they could live in a manner appropriate to their newly found wealth; their old houses were subdivided to accommodate working people ⁽²⁾. David Dale the mill owner built a fine mansion in Charlotte Street ⁽³⁾ and other Palladian villas were built in Argyle Street, Miller Street, and Virginia Street ⁽⁴⁾ and in St. Andrew's Square and George Square ⁽⁵⁾. Soon, however, growing pressure from commerce and industry for central business premises began to push private houses further west. By the middle of the nineteenth century commercial buildings had replaced the

1. Burn, op.cit. p.102 For a detailed discussion of the geographical and economic development of Glasgow see S.G. Checkland "The British Industrial city as history: the Glasgow case", Urban Studies I (1964).
2. On working class housing see below, Chapter 10.
3. A. Gomme & D. Walker, Architecture of Glasgow (1968), p.61, the house was designed by Robert Adam.
4. Perhaps the grandest house was that of the Virginia merchant William Cunningham in Queen Street. J.F.S. Gordon, ed. Glasghu Facies (Glasgow, 1872), p.892.
5. Some of the wealthiest merchants established themselves on country estates near Glasgow. The West India merchant Robert Bogle built a fine house at Gilmorehill in 1802 with elegant shrubberies and walks near the mansion and grounds that Patrick Colquhoun had built at Kelvingrove in the 1780's; Possil was the country seat of J. Campbell the West India merchant and David Dale bought the Rosebank estate at Cambuslang, the Old Country Houses of the Glasgow Gentry (Glasgow, 1870).

houses in George Square; there was now the new Post Office, the new Merchants' House, banks, hotels, a railway station, and later the Municipal Chambers. The gardens in the centre of the square were replaced with paving and statues to provide a more suitable centre for a great city.

There were other indications of the shift of the business district to the west in Glasgow. As early as 1819 the mansion of the Virginia merchant William Cunningham in Queen Street, once the grandest house in the West of Scotland, had been converted into the offices of the Royal Bank ⁽¹⁾; by this time the old bank premises in St. Andrew's Square by Glasgow Green were no longer in a very central position for business purposes. By the 1820's the Royal Bank had acquired an impressive new building ⁽²⁾ at the west end of Royal Exchange Place and close by the Cunningham Mansion became, with many additions, the Royal Exchange building. In Ingram Street the old Virginia Mansion House of the tobacco merchant George Buchanan was subdivided into offices ⁽³⁾ and was demolished in the 1840's to make way for the Union Bank building ⁽⁴⁾. There were other signs that this central ^{area} was no longer a residential district. The Assembly Rooms, built in 1796 as a centre for city society with card and supper rooms ⁽⁵⁾, had been converted by the 1850's into the Atheneum which provided a reading room, library, and billiards room and fulfilled the function of a meeting place for Victorian businessmen that their predecessors had found at the Tontine Coffee House. New social facilities for middle class society were provided at the Queen's Rooms and St. Andrew's Halls at the west end.

1. J. Tweed, Tweed's Guide to Glasgow and the Clyde (Glasgow, 1872), p.7-8.
2. Designed by David Hamilton.
3. Gordon op.cit., p.1038.
4. The impressive porticoed building that David Hamilton designed for the Bank, with its six full length statues representing Britannia, Peace, Justice, Industry and Glasgow is a monument to the commercial confidence and pride of the age, see J. Tweed, op.cit. , p.10.
5. Gordon, op.cit., p.1067.

With this move to the west the once fashionable houses in St. Andrew's Square were turned into the premises of tobacconists, leather merchants, pawnbrokers, and taylor^s (1), by the 1880's the square was described as "hugged on every side by squalid alleys" (2), and by the early twentieth century the large houses of wealthy merchants had become the common lodging houses and "farmed out" houses of the poor (3).

There had been two attempts by developers to lay out new residential areas to the west and south of the city. In the early 1800's David Laurie had feued out an exclusive estate on the south side of the Clyde by the Gorbals. Unfortunately it lay hard by the works of Dixon the iron master and was soon blighted by industrial pollution and encroachment (4). The development of a residential area in a position that did not immediately conflict with the needs of industry and commerce was more successful. William Harvey, who feued out the land of Blythswood to the west of the city, succeeded in establishing the district as a desirable middle class residential area. Here the Corporation enforced prohibitions against the encroachment of industry thus ensuring that the area retained its amenity (5). Nevertheless pressure from commerce did develop; houses were taken over for business premises and the middle classes had to seek peace and quiet further west.

Several factors determined the location of industry in Glasgow. First cotton mills and later engineering workshops were built in the old weaving villages of Anderston, Calton, Bridgeton and Tradeston that

1. Glasgow Herald 1849, quoted by Gordon, op.cit., p.575.
2. Groome, op.cit., p.94.
3. P, Fyfe, "A tour in old Calton", Old Glasgow Club Transactions, III (1913-18).
4. J.R. Kellett, "Property speculators and the building of Glasgow, 1780-1830", Scottish Journal of Political Economy VIII (1961).
5. Kellett, op.cit.

were now part of the city. Secondly, the terminus of the Forth and Clyde Canal at Port Dundas provided a new nucleus for development to the north of the city ⁽¹⁾. Many industries developed around it and along the canal towards the junction with the Monkland. At Port Dundas warehouses, granaries, flour and grain mills were built and the largest distillery in the city ⁽²⁾. Two miles west of the Port Maryhill grew up on the canal by the Kelvin graving dock. Here the dockworkers' cottages provided the nucleus of a township which developed with the exploitation of coal on the nearby Gairbraid and Garscube estates and the establishment of a block-printing works, a paper mill, and a weaving factory. Later there were engineering works and foundries ⁽³⁾.

Industry and warehousing developed in the other direction along the Forth and Clyde canal towards its junction with the Monkland canal, and along the road from Port Dundas to the city ⁽⁴⁾. As early as 1799 Charles Tennant and his partners had moved their bleaching powder works to a strategically placed site adjoining the cut that linked the Forth and Clyde and the Monkland canals. A visitor to the district described the scene in 1856 as "teeming with manufacturing life; potteries, glassworks, saw-mills, wood-yards, flax and cotton-mills, iron foundries and machine shops, coal depots, earthenware manufacturers" ⁽⁵⁾. At the upper end of the Port Dundas basin was Townsend's works where bones were crushed and animal skins boiled to make glues and activated charcoal ⁽⁶⁾. It was thought

1. Checkland, op.cit.

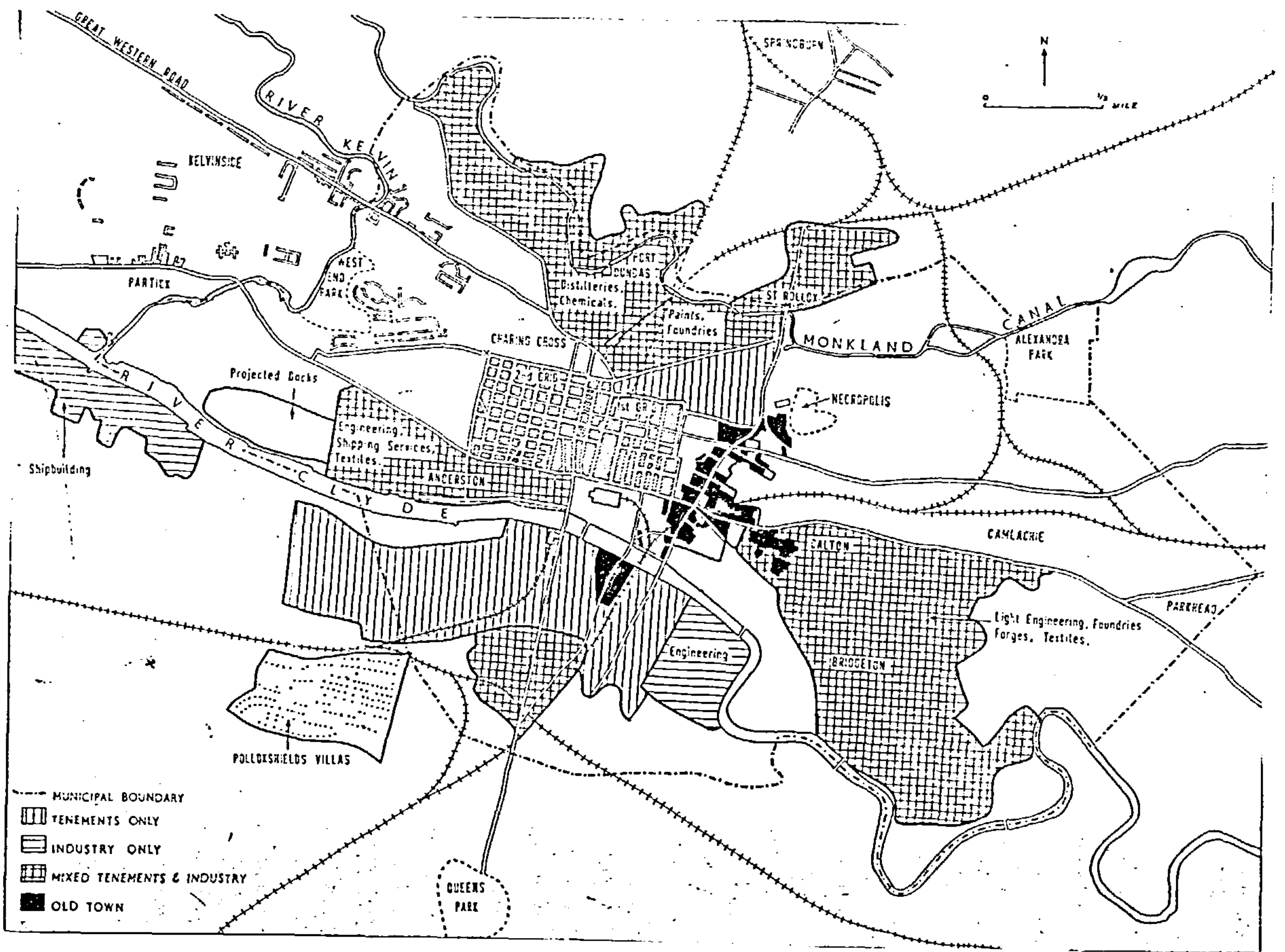
2. Groome, op.cit., p.96.

3. A. Wallace, A Popular Sketch of the History of Glasgow (Glasgow, 1882) p.183 & A. Thomson, Maryhill 1750-1896 (Glasgow, 1895), p.196. By 1856 there was a population of 3,000 in Maryhill.

4. Checkland, op.cit.

5. Burn, op.cit., p.116.

6. *ibid.*, p.120.



Map II. Glasgow 1875; industrial and residential districts.
 (from Checkland, op.cit.)

that the prevailing westerly winds would disperse the noxious fumes produced by this belt of industry in the north of the city. As well as this canal side industrial belt there was a nucleus of industrial development around the terminus of the Ardrossan-Paisley canal at Port Eglinton on the south side of the city ⁽¹⁾. Map II shows how industry was located in Glasgow in 1875 after twenty-five years of rapid growth ⁽²⁾.

The railways, which were built after much of industry was already established, were a third location factor (though less important than the canals) ⁽³⁾. A concentration of heavy engineering industry developed by the railway yards to the north east of the Monkland Canal. At St. Rollox a railway works was built beside the chemical plant and the railway township of Springburn developed nearby around the Garnkirk terminus and the Cowlairs works of the Edinburgh and Glasgow railway. The concentration of heavy industry in this district was intensified when Neilson moved his works from crowded premises in Hyde Park Street, Anderston, to a site at Springburn. This St. Rollox-Sighthill-Springburn complex of engine works and goods yards employed some ten thousand men and covered 190 acres in 1900 ⁽⁴⁾. There was also locomotive building on the south side of the city after Dubs, sometime manager of the Hyde Park Works, established his Glasgow Locomotive Works at Polmadie in the 1860's.

Other heavy industry developed in the St. Rollox district and beyond as iron foundries ⁽⁵⁾ which had started life near to the city centre outgrew their cramped premises and moved onto green fields sites.

1. W.B. Anderson, "Glasgow canals and the mid-Scotland ship canal", Old Glasgow Club Trans. III (1913-19).
2. Checkland, op.cit.
3. J.R. Kellert, The Impact of Railways on Victorian Cities (1969), p.349.
4. *ibid.*, p.291.
5. Of which the St. Rollox, Blochairn, and the Glasgow Iron Works are examples.

The Eclipse Iron Works, for example, moved out from its confined site in Garngad Road to Barnhill in 1880 ⁽¹⁾ and in the early 1870's Macfarlane's Saracen Iron Foundry, which had been founded in Gallowgate in 1851 and later moved to premises in Washington Street, moved to a large site at Possil Park, beyond Port Dundas and the canal ⁽²⁾. Here on what was once the estate of the West India merchant John Campbell, "they removed all the trees, levelled the ground, erected on part of it a spacious foundry for themselves and laid out the rest as streets and dwelling houses" ⁽³⁾. There were also iron works on the south side of the river; notably Lancefield Forge in Scotland Street. ⁽⁴⁾.

The development of this heavy industry to the north of the city was an important factor in determining the location of middle-class residential developments, acting as a barrier to other developments in the area. The land between the canal and the city was built over with works and factories while working class housing was pushed onto the least desirable sites. This tide of industrial development pressed onto crowded Cowcaddens which in turn pressed on middle class Blythswood ⁽⁵⁾.

At Springburn the railway works are on the flat land and the working class tenements are squashed onto the steep sides of Springburn hill. This is only one of the many hills (glacial drumlins) on which Glasgow is built; Blythswood hill, Garnethill, Garngad hill, and Partick hill, are others. The hilly topography of the city has complicated the pattern of land use. Industry could develop by the river or crowd with the railways and canals onto the land between the hills.

1. Stratten's Glasgow and its Environs. (1891), p.115.
2. A. Aird, Glimpses of Old Glasgow (Glasgow, 1894), p.28.
3. Old Country Houses, op.cit. p.lxxxiii.
4. Glasgow's main role in the pig-iron trade was as the commercial centre of the industry (3rd S.A. op.cit.p.155). Many firms had their offices in the city and the Glasgow pig-iron market in the Royal Exchange was the centre of iron-broking.
5. Checkland, op.cit.

Housing has tended to be pushed up onto hillsides. Thus Glasgow's topography probably accentuated the tendency, common in the nineteenth century ⁽¹⁾ for industry and working-class housing to develop very close together.

The shipbuilding industry which developed so rapidly in Victorian Glasgow was of course located by the river. As it developed on the upper reaches of the Clyde the direction of the city's industrial growth was re-orientated in a westward direction, away from the old east end and the declining textile industry ⁽²⁾. As the industry grew it moved further down the river, pushed out by the new docks and quays of Glasgow which were built to handle the city's growing international trade. Many of the shipyards, marine engineering, and associated tenement housing were outwith the city in the burghs of Govan and Partick.

As the old centre of Glasgow had grown overcrowded and dilapidated the middle classes had moved away and so had some of the city's institutions. Increasing atmospheric pollution led to the removal of the observatory from Garnethill to a site further west on Horslethill at Kelvinside ⁽³⁾; while the encroachment of the city forced the removal of the Botanic Gardens from Sandyford at the western end of Sauchiehall Street also to a site at Kelvinside ⁽⁴⁾. The expansion of the city towards Port Dundas had meant that the Royal Glasgow Lunatic Asylum in Parliamentary Road lost its seclusion and its "requisite quiet and amenity" ⁽⁵⁾ and so it sought peace and quiet on a site to the west of the city at Gartnavel. The city bought the star-shaped asylum building in 1841 for use as a poorhouse to replace the crowded Town's Hospital near Glasgow Green ⁽⁶⁾. By mid-century the College buildings in the

1. C.P. Snodgrass "Conurbations", in T.W. Freeman, ed. The Conurbations of Great Britain (1966), p.317.

2. Checkland, op.cit.

3. Stratten op.cit., p.38.

4. B.W. Curtis (n.d.). Glasgow Botanic Gardens, p.3.

5. Groome, op.cit., p.141.

6. Wallace, op.cit. p.166, the building had been designed by William Stark.

High Street were surrounded by decaying slums and after an abortive attempt to sell the site for railway development in the 1840's, the old buildings were finally sold to the North British Railway Company in 1864 for part of the Union scheme. The University moved to a site to the west of the city at Gilmorehill (1).

When businesses replaced the houses in George Square and Queen Street and pressed onto Blythswood the middle classes moved out to the new terraces and crescents at the head of Sauchiehall Street and further west, and to the south side. The fine new houses in a commanding position at Park Terrace were favoured by shipping magnates while nearby Woodside Place became the abode of many of the medical profession (2). Glasgow is a compact city with no great sprawl of suburbs. The middle class residential districts developed only two or three miles from the centre of the city, south of the river at Pollockshields/Langside and north of the river, near the University, at Hillhead and Kelvinside (which lay between the canal township of Maryhill and the riverside, shipbuilding burgh of Partick). These middle class suburbs developed before the building of the suburban railways and their location owes more to their good position, their exclusiveness, and their amenities than to rail transport.

The estate of Kelvinside was feued out for high class residential development after the Great Western Road was opened. Here strict regulation of feuing and disposition ensured that the houses were large, elegant, and built to a high standard. The area was planned by the best architects and soon became the fashionable district in the city.

1. Which had been the estate of a Virginia merchant.
2. It was here that Lister lived.

Both the Botanic Gardens and the Observatory were sited on it and the Gardens, open only to subscribers, provided an exclusive meeting place for the Kelvinside bourgeoisie. By the 1870's horse-drawn trams running to and from the centre of the city added to the amenities of the district. The nearby terraces of large ⁽¹⁾ houses in Dowanhill and Hillhead provided residences for the families of middle class professional men and with the building of the suburban railway and of tramways the lower middle classes moved into the spacious red sandstone blocks of flats that were built in Hyndland at the turn of the century ⁽²⁾. This area, which encompassed 130 acres of the police burgh of Hillhead and the Kelvinside estate, was entirely residential. With the exception of the occasional farrier's smithy or joiner's workshop, industry was carefully excluded. Thus middle class families could live safely, insulated from contact with the masses. Sufficient shops for middle class day to day requirements were provided in Byres Road and Hyndland Road, while the warehouses of Buchanan Street and Sauchiehall Street sold everything else that could be desired for comfortable, bourgeois existence. The industrial success of Glasgow supported a growing, prosperous, middle class able to afford the domestic comforts of life. As Burn commented in 1858, the furnishings that the bourgeoisie were buying were "unmistakable proof of the luxurious habits and refined taste that have grown up" in the west of Scotland ⁽³⁾.

1. 9-12 roomed.

2. M.A. Simpson, "Middle Class Housing and the Growth of Suburban Communities in the West End of Glasgow, 1830-1914" (unpublished M.Litt. thesis, University of Glasgow, 1970).

These flats no doubt provided homes for the army of clerks and salesmen that firms of warehousemen (like Arthur and Company) employed. see, J.F. Barclay, Arthur and Company (Glasgow, 1954).

3. Burn, op.cit. p.112 . The writings of J.J. Bell and the novels of Guy McCrone describe this comfortable bourgeois life in Glasgow at the end of the nineteenth century.

On the south side of the city although the suburb of Kinning Park soon became drab and shabby as industry encroached, the villas and terraces built on the fringe of Queen's Park remained an exclusive enclave which subsequently became the burgh of Crosshill. Nearby was the villa development of Pollockshields West ⁽¹⁾ and its neighbour Pollockshields East which had a population of some 4,000 merchants, professional men, clerks, and warehousemen, living in large tenement flats like those in Hyndland ⁽²⁾.

The development of Victorian Glasgow as the commercial and industrial centre of the west of Scotland required the erection of many public buildings to house the exchanges, the banks, merchants' counting houses, municipal offices, law courts, and warehouses. Many of these and of the new terraces in the residential suburbs were designed by highly original local architects, notably Charles Wilson, David Hamilton, and Alexander Thomson. The banks, churches and houses they built, often in a neo-classical style, are a sign of the confidence and prosperity of the class of entrepreneurs who presided over the industrial boom in nineteenth century Glasgow.

1. Which had a population of 2,000 in 1881.
2. Wallace, op.cit., pp.186-9.

(iv) Administrative Definition

The economic and social development and geographic spread of the city led to changes in the administrative definition of Glasgow. The constant alterations in the city's boundaries obviously means that it is difficult to compare conditions in the city over a period of years and allowances must be made for the changes in the administrative definition of Glasgow that were brought about as new industrial and residential areas were incorporated within the city.

The city extended no further than the old Royalty of Glasgow around the Cathedral and Glasgow Cross until Glasgow Green was incorporated in 1800 and Blythswood and the Necropolis in 1830. The first major extension was in 1846 when the burghs of Calton and Anderston to the east and west of the city respectively, and much of the Barony of the Gorbals, south of the river and then a residential suburb, were incorporated adding some 3,000 to Glasgow's existing 1,768 acres (1).

The parliamentary boundary of Glasgow as defined by the 1832 Reform Act was coextensive with the municipal boundary from 1846 and was used by the Registrar General to define the registration area of the city from the time vital registration was introduced in 1855 until January 1st 1875. On that date the extensions to the city made in 1872, which included the addition of an area of Possil and Springburn, was added to Glasgow for the purpose of vital registration. A further extension to the city in 1878 included the incorporation of Gilmorehill (2) and Coplawhill. These additions to the city in the 1870's added some 1,000 acres and a considerable population to Glasgow (3).

1. J. Lindsay, The Glasgow Boundaries Act, 1912 (Glasgow 1913), preface.
2. The new site of the University.
3. J.B. Russell, The Decennial Census (Glasgow, 1881), p.13.

Under the General Police Acts of 1850 and 1862 small suburban communities were able to achieve the status of Police Burghs and by the 1880's nine of these Police Burghs surrounded Glasgow to the north, west and south. Of these five were residential suburbs; Hillhead which lay close to the University on the west side of the city, and the burghs of Crosshill, Pollokshields East, Govanhill ⁽¹⁾ and Pollokshields West, all on the south side of the river. In addition there were the shipbuilding burghs of Govan and Partick, the canal burgh of Maryhill, and the burgh of Kinning Park which lay between Govan and Glasgow, "an engineering shop for the Clyde" ⁽²⁾. There were obviously disadvantages in this arbitrary boundary division. As Glasgow's medical officer of health complained, "At many points of the municipal boundary there is ^{no} natural division whatever between us and our neighbours. Houses are cut in two, streets are cut across, and everywhere you pass by step into another jurisdiction" ⁽³⁾.

In the 1880's the Secretary of State for Scotland appointed a Commission to enquire and consider the matter of Glasgow's boundaries and it duly reported in 1888 and recommended, "That the whole City of Glasgow should be extended so as to include all the whole continuous area, of which the present City is the centre", and that, "the new boundaries should include all the Police Burghs formed round the City since the passing of the General Police Act of 1850", plus adjoining parts of Lanark and Renfrew which were already built on or would be built on shortly ⁽⁴⁾. The Corporation of Glasgow acted on these

1. Govanhill did take in Dubs' Glasgow Locomotive Works in Polmadie and its associated working class housing.
2. Report of the Glasgow Boundaries Commission (P.P.1888, XLVI), p.xxi.
3. J.B. Russell, "The policy and practice of Glasgow in the management of epidemic diseases, with results", Transactions of the Epidemiological Society of London, New Series, I (1881-2); reprinted in Public Health Administration in Glasgow (Glasgow, 1905), p.85.
4. Rep. Glasg. Boundaries Comm., p.xliv.

recommendations and promoted a Bill in 1890 to incorporate the adjoining Police Burghs and suburban areas within the city. This Bill was strongly opposed by the larger burghs and eventually was rejected by the House of Lords ⁽¹⁾. Thereafter, with their agreement, Pollokshields East, Pollokshields West, Hillhead, and Maryhill, and the suburban areas of Mount Florida, Langside, Shawlands, Kelvinside, Possilpark, and Springburn were incorporated into the city by the City of Glasgow Act of 1891 ⁽²⁾. The burghs of Govan, Partick and Kinning Park, though a natural part of Glasgow, were not incorporated at this time. By the 1891 Act the existing area of the city, some six thousand acres, was increased by a further 5,750 acres and the population of over 565,000 was increased by an additional 91,000 people ⁽³⁾. The area that was defined as Glasgow for purposes of vital registration was altered to conform with the changes brought about by the 1891 Act in the following year ⁽⁴⁾.

There were further minor additions to the city; in 1896 Bellahouston Park and Craigton were added; Shawfield and Blackhill were incorporated in 1899, the Burgh of Kinning Park in 1905, and Moss Park in 1909 ⁽⁵⁾. There were no other major changes in the period under consideration. It was not until 1912 that the full recommendations of the 1888 Boundary Commissioners were implemented when the Burghs of Partick, Govan, and Pollokshaws were annexed by the city. This study does not, therefore, include Partick, Govan, or Pollokshaws.

1. Lindsay, op.cit.
2. 54 & 55 Vict. c.130, see Map III.
3. J. Nicol, Vital, Social and Economic Statistics of the City of Glasgow 1885-1891 (Glasgow, 1891), p.10.
4. 38th Detailed Annual Report of the Births, Deaths and Marriages Registered in Scotland during 1892 (P.P. 1894, XXVI), p.xi.
5. 3rd S.A.op.cit., p.44.

2. Vital Registration

Civil registration of vital statistics began in Scotland on January 1st 1855 under the provisions of the General Registration Act of 1854 ⁽¹⁾ which was later amended by an Act of 1860 ⁽²⁾. Hitherto in Glasgow the number of births each year was calculated from the number of baptisms registered in the city and Bills of Mortality were made up from the registers of burials. From 1609 a register of baptisms was kept in the city by the Kirk Session and at first was fairly comprehensive. From the eighteenth century, however, an increasing number of baptisms took place in churches other than the Church of Scotland and so the Kirk Session registers are far from complete. After the Secession of 1733 the secessionists (and several dissenting churches) opened their own registers which were kept until an Act of 1783 ⁽³⁾ imposed a stamp duty on register entries. People were reluctant to pay for registering baptisms, marriages and burials and soon the registers were scarcely used. Although some were started again after the Act of 1783 had been repealed in 1794, these private registers are incomplete and therefore unreliable ⁽⁴⁾.

In 1814 James Cleland examined the parochial registers of Glasgow and concluded that, with the exception of the register of the proclamations of marriages, they were not only defective but totally useless ⁽⁵⁾. In 1829 he attempted to make a more accurate estimate of the number of births occurring in the city and to this end circularized all the clergymen and lay pastors requesting details of the number of children that were baptized in 1830. He also asked the Baptists, Quakers, and Jews

1. 17 & 18 Vict. c.80.

2. 23 & 24 Vict. c.23.

3. 23 Geo. III c.27.

4. J. Cleland, Letter to His Grace the Duke of Hamilton and Brandon, respecting the Parochial Registers of Scotland (Glasgow, 1834).

5. J. Cleland, The Rise and Progress of the City of Glasgow (Glasgow, 1840), p.7. Cleland was a local statistician who wrote extensively on the social and economic condition of Glasgow.

(none of whom baptized infants) for details of the number of children born to the members of their respective congregations ⁽¹⁾. A similar attempt to get details of all the baptisms in the city was made in 1841 by the magistrates and council of Glasgow but the schedules provided were often returned incomplete and obviously inaccurate ⁽²⁾. It was estimated at this time that throughout Scotland the registers of births were very defective. It was known that the birth rate in England and Wales (where registration of births was already mandatory) was 31.53 per thousand of the population in 1841 while, according to the number of births and baptisms registered, in Edinburgh and Leith the birth rate in the same year was only 9.9 per thousand in that city and in Glasgow only 16.0 per thousand ⁽³⁾. It was estimated in the late 1840's that not a third of the number of births in Glasgow appeared in the registers of baptisms ⁽⁴⁾, and a committee of the Church of Scotland that investigated vital registration concluded in 1853 that, "as there exists no

legislative enactment compelling Registration of the Births, the present Registers are merely records of the Births and Baptisms of those children whose parents voluntarily enter them on the Register" ⁽⁵⁾.

The committee cited a return made to the House of Commons in 1851 that suggested that between one fifth and one third of births in Scottish parishes were not entered in the registers ⁽⁶⁾. Evidently Glasgow was among the parishes in which a particularly large proportion of births

1. Cleland, op.cit.
2. Glasgow City Archives (hereafter G.C.A.) DTC 7 5 3A, A. Watt, The Glasgow Bills of Mortality for 1841 and 1842 (Glasgow, 1844), p.60.
3. G.C.A. DTC 7 5 3A, op.cit. p.61.
4. G.C.A. DTC 7 5 3A, J. Strang, Abstract of the Glasgow Bills of Mortality for 1848 (Glasgow, n.d.).
5. S.R.O. L.A./Box 115/A/b/1. Report of Committee appointed by the Church of Scotland for the purpose of reporting the best method of regulating the Registration of Births, Deaths, and Marriages in Scotland (Edinburgh, 1853).
6. *ibid.*

were not registered as baptisms and the Glasgow registers of baptisms are therefore of little value as a measure of the number of births in the city in the first half of the nineteenth century.

Although the Presbytery of Glasgow had directed in 1613 that Bills of Mortality should be kept, for many years these Bills were made up only irregularly and sometimes contained only the names and ages of the deceased ⁽¹⁾. They were drawn up from the registers of burials which were kept by the wardens of the city's burial grounds ⁽²⁾. In the 1760's an attempt was made to make the Bills more informative ⁽³⁾ but this cannot have been very successful for Cowan noted that until Cleland intervened and took over the preparation of the Bills in the 1820's they were "very imperfectly kept" ⁽⁴⁾. From 1821 Cleland was given details of the name, age, sex and cause of death of the deceased by the wardens of the burial grounds and he used these details to construct the annual Bills of Mortality ⁽⁵⁾. The cause of death was usually supplied by a friend of the deceased who attended the funeral and where such information was not available "it has been customary for the Warden to supply the defect by conjecture" ⁽⁶⁾. The Bills of Mortality are not therefore a reliable guide to the causes of death in Glasgow at this time ⁽⁷⁾. From the 1830's the Bills contain tables of mortality by age and cause of death but only a very limited classification

1. J. Cleland, Abridgement of the Annals of Glasgow (Glasgow, 1817) p.507.
2. Cleland (1834) op.cit. p.23. As the Church of Scotland does not authorize the service for the dead the registers of burials were kept by wardens who were elected by the Town Council, Session or proprietors.
3. Cleland (1817), op.cit. p.507, and provide the name, age, occupation, and cause of death of the deceased.
4. G.C.A. DTC 7 5 3A, R. Cowan. Remarks suggested by the Glasgow Bills of Mortality (Glasgow, 1832).
5. Cleland (1834), op.cit. & Cleland (1817) op.cit.
6. Cleland (1817) op.cit. p.508.
7. McKeown concludes that little confidence can be placed in any Bills of Mortality as there was frequently under registration and deaths were certified by laymen, T. McKeown, The Modern Rise of Population (1976), pp.8-10.

of cause of death is used ⁽¹⁾. Whether the registers were complete even in the 1840's and '50's is doubtful since it was suggested in 1851 that the burial registers in the city's small burial grounds were not being kept with much care ⁽²⁾ which cast doubt on the reliability of the Bills of Mortality which were based on these registers.

By the 1850's there was growing pressure in Scotland for legislation to introduce compulsory vital registration; England and Wales had by now had statutory registration of births, marriages, and deaths for some twenty years. Representatives of Scottish cities and prominent institutions petitioned the House of Commons for the extension of vital registration to Scotland; among them were the Lords Provost and Town Councils of Perth and Edinburgh, the Royal College of Surgeons of Edinburgh, and the managers of the Life Assurance Offices of Scotland ⁽³⁾. In 1853 the committee appointed by the Church of Scotland urged strongly that registration should be introduced in the manner proposed by the Bill for the Registration of Births, Deaths, and Marriages in Scotland as amended by the Select Committee of the House of Commons of 1849 ⁽⁴⁾. An Act of Parliament was duly passed in 1854 and in 1855 vital registration began.

From 1855 the data collected by the Registrar General for Scotland was published regularly in the form of Monthly Returns of the births, marriages, and deaths in the eight principal towns of Scotland, giving the causes of death at four periods of life (0-5 years, 5-20 years, 20-60 years, and over 60 years). The Registrar General also published Quarterly Returns showing the number of births, deaths, and marriages in the divisions, counties, and districts of Scotland but giving no details

1. In 1841-2 deaths were classified as accidents, aged, asthma, bowel complaints, catarrh, child birth, croup, decline, dropsy, fever, of head, of heart, whooping cough, inflammation, measles, nervous, scarlet fever, or miscellaneous, A. Watt, G.C.A. DTC 7 5 3A, op.cit.
2. G.C.A. DTC 7 5 3A, J. Strang, op.cit.
3. See correspondence in S.R.O. L.A./Box 115/A/b/1.
4. *ibid.* Report of the Committee appointed by the Church of Scotland, op.cit.

of the cause of death. The reports also contain meteorological observations for each month from the various districts and also some of the notes which the local registrars had appended to their returns; these often give details of prevailing epidemics. Supplements to the Monthly and to the Quarterly Returns were published in the following year summarizing the data in the returns and, after the passing of the Vaccination Act in 1863, containing the Vaccination Returns for the penultimate year. The Annual Reports, which the Registrar General submitted each year to the Secretary of State for the Home Department (and later to the Secretary of State for Scotland) to be laid before Parliament, were made up of these Monthly and Quarterly Returns together with a short introduction and an abstract of the births, deaths, and marriages registered during the year. Not surprisingly the discussion of mortality rates and causes of death becomes more detailed over the years.

A more comprehensive survey is provided in the Detailed Annual Reports which were published two or three years in arrears. These reports contain inter alia tables of death rates, tables of births and deaths from each individual registration district, and tables of causes of death according to age and sex for Scotland, the Insular-Rural Districts, Mainland-Rural Districts, Small Town Districts, Large Town Districts, and for the Eight Principal Towns of Scotland. These tables are preceded by a general introduction and a discussion of the major epidemics and of the weather. The Detailed Annual Reports were published until the 56th Detailed Annual Report, for 1910, was issued in 1912. Thereafter a new scheme of Annual Reports was introduced in which data are given for the public health districts (as defined by section 12 of the Public Health (Scotland) Act of 1897) which comprised the burghs, county, and

extraburghal districts ⁽¹⁾. This study is based on the Registrar General's Detailed Annual Reports.

When civil registration was introduced the registration districts were based on the existing parochial and burghal divisions of Scotland and the session clerks of the Church of Scotland, who had kept the earlier registers, were usually appointed as the first registrars. The larger parishes and burghs were subdivided; in Glasgow this was done at a meeting of the city's magistrates and representatives of the local Parochial Boards that was called (at the request of Sheriff Alison) by the Lord Provost ⁽²⁾. The Parochial Boards ⁽³⁾ or the Town Councils (as in the case of Glasgow) nominated the registrars ⁽⁴⁾. In Scotland there were no superintendent registrars and the registrars came directly under the supervision of the Registrar General ⁽⁵⁾. There were, however, five District Examiners who inspected the registrars' books each year ⁽⁶⁾.

There is evidence that some of the Glasgow registrars were not always competent to perform their duties efficiently. For at least three months in 1870 the registers of the large Hutchesontown registration district were completely ruined by a registrar who was unfit to carry out his duties. "How any man could create so much confusion and venture to scrabble as he did in these Books of Records is alike amazing and ridiculous", Dr. Bell, the District Examiner of the South Eastern District lamented ⁽⁷⁾. There had also been less serious irregularities in the Central and Calton districts. Evidently the Town Council had appointed

1. 57th Annual Report of the Registrar General for Scotland (P.P.1914 XIV), p.2.
2. G.C.A. D HEW 2 5 1, Minutes of the Committee of Management of Barony Parochial Board, 10 October 1854.
3. 1st Detailed Annual Report of Births, Deaths and Marriages in Scotland (P.P. 1861, XVIII), p.x.
4. 1st and 2nd Reports of the Select Committee on Death Certification (P.P. 1893-4, XI), p.156.
5. 1st Det.Ann.Rep..... (P.P. 1861, XVIII), p.x.
6. S.C. on Death Cert..... (P.P. 1893-4, XI), p.151.
7. S.R.O. L.A./Box III,/bdle.D, letter from Pitt Dundas.

registrars not on the grounds of their suitability, for "the interests (financial) of needy and inefficient old men - inefficient through age and infirmity &c. have been regarded to an extent that has proved highly detrimental to a most important branch of the public service" (1).

Dr. Bell suggested that in future the appointment of registrars should be subject to the approval of the Registrar General (2). It is not clear whether action was taken on this proposal but in evidence to the Select Committee on Death Certification in 1893 Mr. James Tait, the registrar of the Bridgeton district of Glasgow and secretary of the Glasgow Society of Registrars, assured the Committee that registration in Glasgow was very thorough and the registrars were "of a good class" (3). Most of the registrars were full time but two with the consent of the Registrar General and the magistrates, were also bankers (4). That the Registrar General had been consulted on the matter of the two banker registrars suggests that by the 1890's more central control had been imposed on the appointment of registrars.

The Scottish Registration Act was fairly effective from the very beginning. As the Registrar General noted it had been so carefully framed,

"that from the very commencement of the operations of the Act on the 1st January 1855, it is believed that scarcely one Death or Marriage, which occurred from that period has omitted to be registered" (5).

1. SRO L.A./Box III/bdle. D.
2. *ibid.*
3. S.C. on Death Cert.... (P.P.1893-4, XI), p.149. Dr. Rentoul analysed the occupations of Scottish registrars and found they included a manure agent, a mason, a millster, 4 blacksmiths, a gamekeeper, a forester, a slate quarrier, 6 crofters, 10 joiners, a carpenter, 8 chemists, 2 saddlers, a weaver, 2 shoemakers, 9 grocers, 2 taylors, 9 drapers, a shepherd, a candlemaker, 2 bakers, 2 millers, 2 cabinetmakers, 3 factors, 3 estate managers, 3 ironmongers, a painter, a cartwright, 2 watchmakers, 20 farmers, 32 postmasters, 5 ministers, 30 merchants, 426 schoolmasters, 157 inspectors of the poor, 28 clerks, 3 school board clerks, 3 commission agents, 11 bank agents, 5 solicitors, 12 booksellers, and 3 ground officers, *ibid.* p.214.
4. *ibid.* p.149.
5. 1st Det. Ann. Rep.... (P.P. 1861, XVIII), p.x.

As was the case before compulsory registration, the registration of births was more difficult to achieve. In the first month that the Act was in operation under-registration of births amounted to about half of the estimated number of births and in the second month to a quarter (1). Thereafter few births escaped registration and analysis of registration data suggests that from 1861 onwards birth registration was virtually complete (2). As Scottish legislation was drafted with the benefit of English experience of implementing registration procedures, obvious pitfalls could be avoided and so the Scottish Act was probably more effective. In England a rather long period (42 days) could elapse before a birth had to be registered and registration was primarily the responsibility of the registrars (3); in Scotland births had to be registered within 21 days by the parent or attendant at the birth (4) which meant that registration was less likely to be overlooked. The Registrar General remarked in 1864 on the difficulty in making comparisons between Scottish vital statistics and those of England, "because the registration of her births and deaths is defective" (5).

A small proportion of births may well have evaded registration as it is likely that some infants, particularly illegitimate ones, who died shortly after birth were buried as stillbirths. There was a considerable number of stillbirths; Cleland's data for 1821 and 1830 suggests a stillbirth rate of 4.7% and 6.9% of all births (6), the stillbirth rate of infants born in the lying-in wards of the City Poorhouse

1. 1st Det. Ann. Rep.... (P.P. 1861, XVIII), p.x.
2. D.V. Glass, "A note on the under-registration of births in Britain in the nineteenth century", Population Studies V (1951).
3. D.V. Glass, Numbering the People (Farnborough, 1973) p.129, an amending Act of 1874 improved the situation in England.
4. G. Seton, Practical Analysis of the Acts Relating to the Registration of Births, Deaths and Marriages in Scotland (Edinburgh, 1881), p.37.
5. 14th Det. Ann. Rep..... (P.P. XV), p.xv.
6. J. Cleland, Enumeration of the City of Glasgow and the County of Lanark (Glasgow, 1831); Farr estimated that stillbirths amounted to 4% of all births (Glass (1973) op.cit. p.195).

was 7.46% of all births between 1876-'80, 8.46% between 1881-'84, and 10% between 1886-'90 ⁽¹⁾ and in 1907 the medical officer of health of Glasgow estimated the stillbirth rate as "not less than 5% of those registered" ⁽²⁾. The actual rate that was recorded after the Notification of Births Act came into effect was 3.1-3.5% of live births in 1909 and 4% in 1910 ⁽³⁾. Nevertheless, despite the recommendations of the Select Committee on Death Certification ⁽⁴⁾ in Scotland registration of stillbirths was not introduced until 1939 ⁽⁵⁾ although they were notifiable from 1907 ⁽⁶⁾. The clandestine disposal of live births as stillbirths would evade the registration of both birth and death of the infant and it was believed that this practice was not uncommon.

Dr. Russell, the medical officer of the city (quoting the secretaries of private cemeteries) spoke of "the enormous number of bodies smuggled away in this manner as stillborn" ⁽⁷⁾. He was convinced that the fact that stillbirths did not have to be registered provided the opportunity for crimes to pass unnoticed.

Deficiencies in the registration of births were probably small, although an area of poverty and overcrowding such as the Glasgow slums was precisely the sort of place where deficiencies in registration would be most likely to occur ⁽⁸⁾.

1. Calculated from data in G.C.A. D HEW 1 3, City Parish, Minutes of House Committee. Over 70% of these births were illegitimate and they therefore may be rather untypical. (The rates are based on 1,297 births).
2. Report of the M.O.H. of the City of Glasgow (1907), p.33.
3. Report of the M.O.H. of the City of Glasgow (1909 and 1910), p.17
4. S.C. on Death Cert..... (P.P. 1893-4, XI), p.153.
5. Glass (1973), op.cit. p.182. 1 & 2 Geo.VI c.55, Registration of Stillbirths (Scotland) Act.
6. The Notification of Births Act, 1907 (7 Edw.VII c.40) was adopted by the Corporation of Glasgow and required the notification of all births and stillbirths of 28 weeks gestation or more by the father or attendant to the M.O.H. of the district within 36 hours of the birth. Mitchell Library (hereafter M.L.) Minutes of the Corporation of Glasgow, 21 Oct. 1907, p.249.
7. S.C. on Death Cert..... (P.P. 1893-4, XI), p.179.
8. Glass (1973), op.cit. p.183.

The data on registration of deaths is almost certainly more complete than that on births since deaths are more difficult to disguise. Yet there are recorded instances of fraudulent claims of death to get insurance money. Dr. Russell cited a case in which the death of a child was registered twice; once by the parents and once by a sister-in-law who had insured the child under its mother's name and who wanted to claim the insurance (1).

There are, however, other sources of error in the Registrar General's early mortality data. Throughout the years 1855-1911 many deaths, particularly those of the old, were of people born before the introduction of birth registration and hence statements of age were not based on a birth certificate (although they might be based on a baptismal certificate). The reliability of ages that were given in censuses and on registration of death is therefore suspect (2). There is a tendency even today for people to exaggerate their age, to round up ages to such significant points as the age of majority, for women to understate their age, and for a preference for certain ages - so called digit preference (3). These errors can be reduced, however, by using data from broad age groups, the procedure followed in this thesis.

The proportional death rate tables given in the Detailed Annual Reports in the inter-censal years can be particularly misleading. They

1. S.C. on Death Cert..... (P.P. 1893-4, XI), Q.3310.
2. When Old Age Pensions were introduced in 1908 for those over 70 it was often difficult to establish proof of age. Baptism records were often meagre and it was estimated at this time that between 1837-54 only some 30-40% of births had been recorded. However, those applying for pensions had usually been married and marriage entries give the dates of birth of the parties; further, the birth certificate of children born since 1855 give the date and place of the parents' marriage, see G.T. Bissett-Smith, "Scottish birth registration and old age pensions", Poor Law Magazine and Local Government Journal XVIII (1908), 322-7.
3. S.H. Preston, N. Keyfitz & R. Schoen, Causes of Death, Life Tables of National Populations (1972), p.28.

were calculated using population estimates based on projections from the previous census that assumed a rate of population growth identical with the previous inter-censal decade. In the late nineteenth century there was considerable variation in the decennial rate of population growth in Glasgow and elsewhere ⁽¹⁾. Death rates that are given in the Detailed Annual Reports in inter-censal years, except for those years in which recent census data is used, are therefore often inaccurate ⁽²⁾. Unfortunately the Registrar General's Decennial Supplements to the Annual Reports, though providing information on individual counties, do not give decennial data for individual cities. For this reason age-specific and disease-specific death rates have been calculated for Glasgow from the causes of death tables in the Detailed Annual Reports using population data from the relevant censuses.

The chief difficulty in using death registration data, however, are inconsistencies in the way in which the cause of death was defined. Over a period of years increasingly precise diagnosis of the cause of death will obviously affect mortality rates from specific diseases. For example the marked decline in the latter part of the nineteenth century in the number of deaths attributed to poorly defined causes obviously had the effect of increasing the number of deaths attributed to specified diseases. The number of these deaths whose cause was very imprecisely defined was particularly high among those aged over 65 years where death was often attributed to "old age", and among the very young where death was frequently registered as due to such vague causes as "teething" or "atrophy and debility". Deaths attributed to these imprecise causes declined in the period under consideration, but as the

1. See Table I.

2. J.B. Russell Vital Statistics of Glasgow (Glasgow, 1886), pp.7-11.

number of deaths occurring among those aged over 65 was relatively small the impact of diagnostic changes on the mortality trends in this age group was small ⁽¹⁾. Mortality trends are more affected by the increasingly precise diagnosis of the causes of death of the very young.

Medical knowledge grew in the second half of the nineteenth century and diagnostic methods improved. Some conditions, coronary thrombosis and appendicitis for example, were described for the first time. More precise diagnosis led to apparent changes in the patterns of disease. The Registrar General noted that the apparent increase in heart disease resulted, "chiefly, if not entirely from improved pathological knowledge" ⁽²⁾. Diagnosis of heart disease and diseases of the circulatory system, "depends on the medical knowledge of the persons who register the cause of Death. Where the knowledge is defective, the cause of Death is often registered as Dropsy, or even Asthma, or Apoplexy, because these are the apparent diseases of which the patient died" ⁽³⁾.

Changes in mortality rates were thus often due "to improvements in diagnosis and greater care in assigning the true cause of death" ⁽⁴⁾.

As the Registrar General remarked, "medical men who received their professional education previous to these earlier times, (sic) were probably not such adepts in the use of the stethoscope (it but shortly having come into general use) in detecting special Cardiac and Pulmonary disease,

1. Preston, Keyfitz, and Schoen, op.cit. p.31.
2. Supplement to the Registrar General's Monthly Returns (P.P. 1856), p.6.
3. Supplement to the Registrar General's Monthly Returns (P.P. 1861), p.5.
4. 28th Det. Ann. Rep..... (P.P. 1884-5, XVII), p.lii.

or so well acquainted as the professional man is in these days with the qualitative analysis of urine in Renal Disease " (1).

Improvements in diagnosis due to such innovations as the stethoscope undoubtedly changed the mortality trends of some diseases but their impact on the most important causes of death would be largely confined to the respiratory diseases where the effect of changes in diagnosis and nomenclature can, in any case, be reduced by combining the data on various diseases (2). Most of the infectious diseases are fairly clearly defined, although typhus and typhoid were differentiated for the first time in this period and what was thought to be a new infectious disease, diphtheria, was added to the list of causes of death (3).

There are other reasons for inconsistencies in the cause of death that was registered. Unlike England, where death was attributed to the immediate cause of death, in Scotland the cause of death was supposed to be given as the primary disease that attacked a person. Dr. Stark, the Superintendent of Statistics for Scotland, believed that the only safe principle in registering the cause of death was by the primary cause, thus "a case of measles with bronchitis complications under Measles, and not under Bronchitis, a case of diseased heart with dropsy, under Disease of Heart, and not under Dropsy" (4).

1. 28th Det. Ann. Rep..... op.cit.
2. The data on pneumonia, bronchitis, bronchopneumonia, pleurisy etc. are combined to make allowances for the changing use of these terms.
3. The classification of cause of death by the Registrar General was expanded several times in this period but apart from the cases already referred to above the classification of the major causes of death (the infectious and respiratory diseases) remained unchanged. Allowance has been made in this study for such changes that did take place. In 1911 the Scottish R.G. adopted the international classification of causes of death which was already in use in England.
4. J. Stark, "Remarks on Dr. Farr's proposed new statistical classification for statistical returns," Edinburgh Medical Journal V (1859), 1073.

Stark's view was not universally accepted and this convention was probably not always observed (1). Stark noted, for example, that the disproportionate number of deaths certified as caused by bronchitis in 1866 probably omitted to state that bronchitis supervened on phthises. Causes of death, he stressed, should be attributed to the primary disease and not to secondary and tertiary complications (2).

Another source of inaccuracy in certification of cause of death was the prevalence of fashion in diagnosis and disease names. Thus,

"In one doctor's practice nearly all the deaths from respiratory disease will be returned as bronchitis, in another perhaps as pneumonia" (3),

one authority remarked. Other inaccuracies were introduced when some doctors attempted to protect the feelings of bereaved families. They might use a euphemism to disguise a discreditable cause of death or use a socially acceptable medical complication to disguise a socially unacceptable primary cause of death. Although the registrar of the Bridgeton district of Glasgow held that, "there was no delicacy in certifying such causes as alcoholism, syphilis, cancer etc." (4), a city doctor believed that two thirds of death certificates "granted by the profession do not contain the real cause of death, but

1. Since, as Rumsey pointed out, records of death should deal with facts and not opinions on underlying conditions present long before death, H. Rumsey, Essays and Papers on Some Fallacies of Statistics Concerning Life and Death (1875), p.136. This matter was considered at a meeting of the Society of Medical Officers of Health of Scotland in 1896 which indicates that there was still confusion on this point. This meeting made several resolutions on attaining uniformity in the practice of the classification of cause of death, the most important being "That in certification of death that disease should be accepted as the 'primary' cause which comes first in order of time". See, editorial in Sanitary Journal, II (1896), 93.
2. 12th Det. Ann. Rep..... (P.P. 1868-9 XVI), p.xxxvii.
3. A. Newsholme, Vital Statistics (1889), p.22.
4. S.C. on Death Cert..... (P.P. 1893-4, XI), p.154.

something which will please the relations into whose hands the document is put to carry to the registrar"⁽¹⁾.

The procedure for registration of deaths had certain weaknesses which will now be considered. Deaths could be registered on the certificate of a doctor; on the information of the Procurator Fiscal; or on the information of a qualified informant. The doctor who attended in the last illness was obliged, under the penalty of a forty shilling fine, to forward the form with the particulars of the cause of death to the registrar. This unpaid obligation was one the medical profession greatly resented ⁽²⁾. The "qualified informant" had to give notice of the death within eight days and if the registrar had not received a medical certificate by that time he sent the doctor concerned a certificate to be completed and returned within three days. Thus eleven days might elapse between the death and the registrar receiving a medical certificate stating its cause. Where a precognition had been held concerning a death the Procurator Fiscal provided the required information. In cases where no doctor had been attendance on the deceased, however, (and where there had been no precognition) a death certificate was issued on the information of the relative or friend of the deceased who had given notice of the death ⁽³⁾.

Even where a doctor signed the death certificate he might have seen the patient only briefly and thus the reliability of the certified cause of death would be questionable. The case of a child aged six months who died in Glasgow without receiving medical attention illustrates

1. Dr. Chalmers at a meeting of the Faculty of Medicine of Glasgow, The Lancet, I (1861).
2. ibid.
3. S.C. on Death Cert..... (P.P. 1893-4, XI), p.151.

the loop holes in the regulations governing Death Registration. The cause of death was initially said to be "debility" which was subsequently changed to "tabes mesenterica" by the registrar on the statement of the parents. When the case was referred to the Sheriff's fiscal, the parents produced a certificate from a doctor giving "acute pneumonia" as its cause. Yet after a post-mortem examination death was found to be due to tubercular meningitis (1). If such discrepancies in diagnosis of cause of death occurred in one case they were, no doubt, not uncommon.

The cases where inaccuracies in the diagnosis of cause of death were most likely to occur were those where there had been no medical man in attendance and the cause of death was attested by a friend or relative (2). On these occasions a symptom, such as dropsy, might often be given as the cause of death. Thus the apparent rarity of diseases of the circulatory system in rural areas was probably due to difficulty in obtaining medical attention and medical certificates in sparsely populated country districts. "Ordinary informants cannot be expected to possess much acquaintance with the methods by which medical men arrive at diagnosis of Heart Disease; and such informants are prone to refer death to some prominent symptom as 'Dropsy' ... "

the Registrar General noted. For the same reason, he observed, deaths registered by non-medical informants as due to the vague term "Congestion of the Lungs" probably concealed some cases of pulmonary tuberculosis (3). Moreover, particularly in the early years of

1. S.C. on Death Cert.... (P.P. 1893-4, XI), p.178.

2. See below, p.43.

3. 24th Det. Ann. Rep. (P.P. 1882, XIX), p.xxxiv.

registration, the term phthisis (usually a synonym for pulmonary tuberculosis) was often applied to any chronic chest condition (1). Clearly any changes in the diagnosis of pulmonary tuberculosis, which was an important cause of death in this period, might have a significant impact on mortality trends.

Registrars relied on the information they were given to establish the cause of death. Even in cases where there had been no doctor in attendance no further enquiry was usually made to confirm the accuracy of the stated cause. Only deaths that were obviously suspicious, were sudden, or were due to an accident, were reported to the Procurator Fiscal for further investigation (2). For example in 1878 three employees in a hair factory died suddenly and their deaths were certified respectively as "Unknown, no Medical Attendance", "Sudden, supposed heart disease, no Medical Attendance", and "Unknown, uncertified". The medical officer of health Dr. Russell heard of these three deaths and persuaded the Sheriff's Fiscal to order a post-mortem examination of the one body which had not already been buried. He suspected that all three deaths had been due to anthrax. As Russell pointed out, "but for an accidental circumstance, within one week three adults in perfect previous health, employed in one work, seized with a severe illness, and dying in two or three days, without medical attendance, admittedly from an unknown cause, would have been interred, and their bodies probably placed beyond recovery" (3).

Even the death of an infant who had not received medical attention and

1. Newsholme, op.cit. p.213.
2. S.C. on Death Cert..... (P.P. 1893-4, XI), p.151-2.
3. G.C.A. El 20 (4), p.21.

was said to have died from such a vague cause as "debility" or "teething" would not be investigated any further (1). Thus in cases where death was registered without a medical certificate, the cause of death that was given was largely a matter of conjecture. The registrar merely interpreted the descriptions of symptoms given by relatives and friends.

The high proportion of uncertified deaths in Scotland in general and in Glasgow in particular casts doubt on the reliability of the stated, registered cause of death. There had long been concern at the high proportion of uncertified deaths in Scotland. In 1883 The Lancet noted that some 20% of the deaths in the eight principal towns of Scotland were uncertified in the years 1882 and 1883, compared with only 3.3% of deaths in England. "That a fifth of the total number of deaths should be without guarantee as to their cause", The Lancet observed, "not only deprive mortality statistics of their chief value, but exposes a state of society in which a sad temptation is offered to criminal course" (2). Although this article brought a sharp rejoinder from the M.O.H. of Glasgow pointing out that 9% and not 20% of deaths in the city in 1882 were uncertified the proportion of deaths registered without a medical certificate of their cause was still very high (3).

In 1871 the attention of the Glasgow authorities had been drawn to the high proportion of uncertified deaths in the city; in this year, the first in which uncertified deaths were classified, 24% of the total were uncertified. This proportion remained high in subsequent years and so a committee of enquiry was appointed, for as Dr. Russell noted at the

1. J.B. Russell, Report upon Uncertified Deaths in Glasgow (Glasgow, 1876), p.26.
2. Anon. "Uncertified deaths in Scotland", The Lancet June 30 (1883), 1106.
3. The Lancet had used uncorrected data from the Registrar General's Weekly Returns, see J. Glaister, "An enquiry into the necessity for legislative reform in Scotland in regard to uncertified deaths", Proceedings of the Philosophical Society of Glasgow, XVI (1884), 305-327.

time, "for all scientific purposes of a system of registration, the value of the system is proportional to the accuracy with which it records the cause or occasion of death or, to the number of deaths which are certified by qualified medical men" (1).

The enquiry found that there was a wide local variation in the distribution of uncertified deaths with the highest rates in the poorest, most crowded areas of the city. Of deaths of children under three years, for example, 42% were uncertified in the St. Andrew's Square district (a central slum district) and only 8% in Kelvinhaugh and Sandiford on the outskirts. Moreover eleven of the twelve districts with the highest proportions of uncertified deaths in the city were also the districts which had the highest death rates. Districts with low death rates had correspondingly low proportions of uncertified deaths; Kelvinhaugh and Sandiford had only 8% of deaths uncertified and a death rate of 19% while the old, crowded central Bridgegate and Wynds district had, in the same period, a death rate of 43% and 40% of the total deaths were uncertified (2). As Russell noted elsewhere, "the rule is where the

death rate is high, there you will find the largest proportion of uncertified deaths; that means just exactly where you wish most accurately to know the causes of death you are deprived of this accurate information by this defect" (3).

This high proportion of uncertified deaths was thought to be due to the longer period of time that was allowed for registration in

1. Russell (1876), op.cit. p.6.
2. Russell (1876), op.cit. pp.8-9.
3. S.C. on Death Cert..... (P.P. 1893-4, XI), p.173.

Scotland, compared with England, and to the ease with which a non-medical person could register a death ⁽¹⁾. Moreover relatively fewer deaths were investigated by Procurators Fiscal in Scotland than by Coroners in England. Nevertheless the introduction of a system of checks in Glasgow in 1873 did greatly reduce the proportion of uncertified deaths. All deaths of children under five years were followed up by a member of the city's sanitary staff and all deaths from infectious and pulmonary diseases were investigated ⁽²⁾. Yet even the 9% rate of uncertified deaths in Glasgow in 1882 compared badly with the rate in English towns; "it is evident how unreliable must be the returns of the Registrar General" The Lancet commented ⁽³⁾.

The proportion of uncertified deaths did continue to fall, however, both in Glasgow and nationally, particularly after the Friendly Societies Act of 1875 which required the production of a medical certificate of death before insurance was paid ⁽⁴⁾. In 1890 only 3% of deaths remained uncertified in Glasgow and by the years 1908-12 only 1% of deaths, on average, were uncertified each year ⁽⁵⁾. A similar trend occurred nationally with the percentage of uncertified deaths falling from 10.9% in 1881 to 1.7% in 1914 ⁽⁶⁾. This trend must have contributed considerably to increasing precision in diagnosis of cause of death.

How significant were increasing diagnostic precision and the increase in the proportion of deaths that were medically certified to the changing pattern of mortality in the sixty years from 1855? The major components in the fall in mortality in this period were the decline

1. S.C., on Death Cert.... (P.P. 1893-4, XI), p.183.
2. *ibid.* p.172.
3. The Lancet (July 14, 1883), 68.
4. J.B. Russell, "On the influences of the Friendly Societies Act 1875 on the proportion of uncertified deaths in Glasgow", Glasgow Medical Journal, VIII (1876).
5. 59th Det. Ann. Rep..... (P.P. 1914-16, X), p.cxiv.
6. 60th Det. Ann. Rep..... (P.P. 1914-16, XI), p.xxii.

in the infectious diseases of childhood and in respiratory diseases (1). Most of the childhood infectious diseases are easily recognisable, although a few cases of smallpox might be missed altogether (2) and diphtheria was described for the first time in this period and was therefore likely to have been missed and underreported. This study is concerned with the downward trend in mortality from these diseases and both increasingly precise diagnosis and fewer deaths registered on the information of ignorant relatives rather than by medical men would, if anything, increase rather than decrease the number of deaths attributed to specific diseases. In short, these factors would not contribute to an apparent downward trend in mortality from specific diseases; quite the reverse. In order to counter the effect of increasingly precise diagnosis on trends in non-tubercular respiratory diseases, these conditions have been considered together.

There are other problems in analysing mortality trends in Glasgow in the latter half of the nineteenth and early twentieth centuries and I propose to consider these briefly. The area treated as Glasgow for purposes of vital registration was arbitrarily defined and changed several times. The city was surrounded by growing suburban districts and police burghs and these were from time to time, incorporated into Glasgow (3). The extension of the city in this way no doubt affected mortality trends; the changes are, however, difficult to quantify. Commenting on the addition to Glasgow in 1875 of some 17,000 people, the Registrar General noted that it was impossible "to affirm with confidence that the seeming reduction of the death rate is not illusory It cannot be doubted that the

1. See below, p. 50 ff.
2. See below, p. 312-3.
3. See above, pp. 24-26.

admission into a registration area (such as that of Glasgow) of many thousands of a less dense suburban population must have a tendency to make the calculated death rate lower than that which would be obtained by contrasting the population and deaths of the limited urban area" (1).

Later extensions of the boundaries of Glasgow must have had a similar impact on mortality trends.

Similarly, the Poor Law areas of the city did not correspond to the registration districts which meant that some Poor Law hospitals were not within the Glasgow boundary and the insane asylums were out in the country. Much of the municipal area of Glasgow south of the Clyde fell within the parish of Govan which provided for its infirm poor at Merryflatts in Lanarkshire and for the insane poor at Hawkhead in Renfrewshire. The Parish of Glasgow provided for its insane poor at Gartloch in Lanarkshire and at Woodilee in Dunbartonshire (2). For much of the period the Poorhouse infirmaries for most of Glasgow lay outside the city boundary (3). Barony poorhouse infirmary at Barnhill was incorporated into the city only in the extension of 1891 and Merryflatts remained outwith the city until 1912. All the deaths in these institutions, like the deaths of non-residents in the city's voluntary hospitals, were registered in the district in which they occurred irrespective of the place of residence of the deceased. Only in 1911 did the Registrar General transfer deaths to the permanent district of residence.

1. 21st Det. Ann. Rep..... (P.P. 1880, XVII), p.xxxi.
2. 12th Annual Report of the Local Government Board for Scotland (P.P. 1907, XXIX), p.233.
3. J. Brownlee, "An investigation into the epidemiology of phthisis in Great Britain and Ireland, Medical Research Council Special Report, 18 (1917), 12.

3. Mortality Trends, Scotland and Glasgow 1855-1912

Before the introduction of statutory vital registration in Scotland the only records of the causes of mortality are Bills of Mortality. The Glasgow Bills are obviously deficient but they do give some indication of the most common causes of death in the city ⁽¹⁾. According to the Bills of Mortality for 1791, for example, 26% of deaths in that year were from smallpox, 18% from consumption, 10% from old age, 6% from fever, and 6% from "bowel hives"; 63% of all deaths were of children under ten years ⁽²⁾. Robert Watt, who analysed the death registers of the Glasgow burial grounds for the years 1783-1812, found that smallpox accounted for over 19% of total deaths between 1783-88 but declined in the first decade of the nineteenth century to account for only 4% of deaths between 1807 and 1812. Smallpox seems to have reached a high point in Glasgow in the 1780's and 1790's ⁽³⁾. Whooping cough and fever were other important causes of death. By the 1830's the classification of causes of death in the Bills of Mortality had been expanded but some of the causes are rather obscure. In 1837 and 1838 "decline" was said to account for 15 and 18% of the deaths respectively. It is not at all clear what constitutes "decline" or whether it includes a pulmonary tuberculosis. In 1837 fever accounted for 21% of deaths and for 11% in 1838, bowel complaints for between 10 and 12%, and whooping cough, measles, smallpox, and inflammation each account for 5% of deaths. Children continue to account for a high proportion of deaths; 50% of the total occurred in those aged under ten years ⁽⁴⁾.

1. See above, p. 27-30.

2. T. Ferguson, The Dawn of Scottish Social Welfare (1948), pp.74-5.

3. R. Watt, An inquiry into the relative mortality of the principal diseases of children, and the number who have died under ten years in Glasgow in the last thirty years (Glasgow, 1813); for a detailed discussion of smallpox see below p. 292 ff.

4. See Bill of Mortality for Glasgow, 1838, in Ferguson op.cit. pp.76 & 77.

From the time that vital registration was introduced in 1855 much more detailed and accurate data are available on Scottish and Glasgow mortality and these data form the basis of this study. Analysis of the mortality data for Scotland and for Glasgow shows that the fall in mortality between mid-nineteenth century and the first decade of the twentieth century was largely due to a relative decline in deaths from respiratory diseases, tuberculosis, typhus, enteric fever and simple continued fever, scarlet fever, diarrhoeal diseases, whooping cough, diphtheria, measles, and smallpox. A comparison of mortality from these conditions in the decennia 1861-70 and 1901-10 for Glasgow and for Scotland reveals the relative contribution made by these diseases to the overall decline in mortality (Table III). The greatest difference in pattern of the mortality decline in Glasgow and the pattern nationally is the relative contribution made by the fall in deaths from respiratory diseases. In Glasgow the decline in deaths from non-tubercular respiratory diseases accounts for a much higher proportion of the overall mortality fall than it did nationally and this is the most obvious difference between the Glasgow and the Scottish patterns of mortality. Mortality rates for pulmonary tuberculosis (as from other forms of respiratory diseases) were much higher in Glasgow than in Scotland as a whole but the decline in pulmonary tuberculosis accounts for much the same proportion of the overall mortality decline in Glasgow as it did nationally. The same is true of the pattern of mortality trends of the other infectious diseases that account for most of the remaining part of the total mortality decline.

Insert
See
app 11

The age and sex structure of the population of Glasgow and Scotland roughly correspond and change little between 1855 and 1911

(Table IV) and so crude, uncorrected mortality rates have been used in the discussion.

Table IV (1) Composition of the population, Glasgow and Scotland
1861 and 1911

Age	Scotland				Glasgow			
	1861		1911		1861		1911	
	M	F	M	F	M	F	M	F
Under 1 year	3.2	2.7	2.4	2.2	3.7	3.1	2.4	2.3
1-4	11.4	10.0	9.2	8.6	11.3	9.8	9.1	8.9
5-14	24.1	20.8	21.9	20.4	21.5	18.7	20.6	19.6
15-24	19.2	19.2	18.8	18.2	21.3	21.9	18.9	19.5
25-44	23.8	26.5	27.8	28.5	28.0	30.2	30.8	30.4
45-64	14.2	15.2	15.3	15.9	12.2	13.4	15.1	15.2
65+	4.3	5.4	4.6	6.2	2.0	2.9	3.1	4.4

Graphs of the crude death rates for Scotland and Glasgow between 1855 and 1912 (Figures 1a and 1b) allow three clear conclusions to be drawn, namely that mortality in this period declined only from the 1870's in Glasgow and nationally, that mortality rates remained at a much higher level than those prevailing over the whole of Scotland, and that male mortality was consistently higher than female mortality. Glasgow had one of the highest death rates of all Scottish towns in the decade 1861-70 which was exceeded only by Greenock (Table V). By the first of the twentieth century, however, death rates in the eight towns had all fallen and now that of Glasgow was the highest.

1. Calculated from census data.

Table V (1) Deaths/1,000 population in the eight principal towns of Scotland 1861-70 and 1900-9.

	1861-70	1900-9
Glasgow	30.4	20.0
Edinburgh	25.7	17.6
Dundee	28.4	19.5
Aberdeen	24.2	17.3
Greenock	31.3	18.1
Paisley	27.8	18.1
Leith	23.5	15.9
Perth	25.0	17.9

In the years after the beginning of vital registration, Scottish death rates rose to a peak in 1864 and maintained this plateau for the next ten years (Figure 1a and Table VI). Thereafter the rates declined. Mortality rates in Glasgow were almost 30% higher than the national rates (Table VI) with the maximum rate occurring in the notoriously bad year of 1869. Thereafter the city's mortality rates fell steeply, more steeply than the Scottish rates. By 1911 although Glasgow rates are still significantly above the national rates the relative difference is smaller than it had been fifty years earlier (Table VI). The rise in mortality rates in the 1860's is probably not an artifact as there is no evidence that there was a significant under-reporting of deaths in the early years of registration.

1. Sources, Supplement to the R.G.'s Report on Births, Marriages and Deaths in Scotland during the 10 years 1861-70, p.49 and 58th Det. Ann. Rep. (P.P. 1912, XIV) p.1xv.

Table VI (1) Death rates/1000 living in Glasgow and Scotland 1855-1911

	Scotland		Glasgow	
	M	F	M	F
1855	21.79	20.20	31.37	28.69
1861	21.30	19.50	29.72	26.11
1864	24.70	22.56	35.08	30.25
1869	24.04	21.96	35.30	32.63
1871	22.97	21.55	34.14	32.03
1881	20.05	18.71	25.95	24.59
1891	21.15	20.38	25.79	24.86
1901	18.49	17.35	22.49	20.05
1911	15.51	14.64	17.40 ⁽²⁾	

The relationship between age and mortality is important. Analysis of the Registrar General's mortality data at single year intervals for ages 0-4 years, at ten yearly intervals until age 25 years and at twenty year intervals thereafter shows clearly that the mortality decline was not uniform at all ages ⁽³⁾. Infant mortality (Figure 2) remained at a high level throughout the period and was always much higher in Glasgow than it was nationally. In Scotland there were 125 deaths/1,000 live births in 1855 and 112 deaths/1,000 live births in 1911. Infant mortality in Glasgow fell from the high level of 196 deaths/1,000 live births in 1855 to 137 deaths/1,000 live births in 1911, thus it remained considerably higher than the Scottish rate but by the early twentieth century (Figure 2) the difference between Glasgow and national levels of infant mortality was much less marked. Mortality of infants under one year of age remained a constant 21% of total male mortality and 16% of female mortality in Scotland throughout the period; in Glasgow mortality under one year fell slightly; it amounted to 24% of male mortality and 20% of female in 1861 and 21.7% (male and female) in 1911 (see Table VII)

1. Sources, R.G.'s Detailed Annual Reports and censuses.
2. Both sexes.
3. Mortality at different ages has been analysed in Census years so that the age pattern of the population as measured by the census can be used.

Table VII shows that relatively more deaths occurred in Glasgow than in Scotland as a whole, not only among infants but also in the age group 1-4 years. The fall in mortality in this age group was much steeper in Glasgow than it was nationally, falling by 50% in the city between 1861 and 1911. The decline was much less marked nationally. The diseases that attack this age group will obviously be of special concern to this study. There was also a decline in the proportion of deaths occurring at ages 5-14 and 15-24 years both in Glasgow and throughout Scotland but the decline was relatively no greater in Glasgow than nationally. The proportion of deaths occurring at ages over 25 years rose most obviously at ages over 45 years. The rise was relatively greater in Glasgow than in Scotland (Table VII). In Glasgow the proportion of those dying between the ages of 45 and 64 increased by 30% and it doubled among those aged over 65 years. Nationally the relative increase in mortality between ages 45 and 64 was of the same order but was relatively less among those over 65. The mortality trends at different ages are clearly shown in Figure 3 (which is on a logarithmic scale). If figures 3a and 3(1a) (male deaths at successive ages/100,000 living in Glasgow and in Scotland) are compared the higher rates of mortality in Glasgow at ages under 45 years, and even higher rates of the very young are very obvious. Mortality declines steeply at ages between 1 and 25 years and perhaps most dramatically among the under fives, where mortality has been so high initially. The most important single characteristic in the pattern of mortality in the period under consideration is the absolute and relative decline in mortality among children, particularly among those under five years of age. Mortality among the under 25's fell from 1871 onwards but among older people only from 1891.

In Glasgow some 45% of the mortality reduction in women and 36% of the mortality fall in men was due to the decline in mortality from respiratory diseases of all kinds. Nationally only 23% of the fall in male mortality and 30% of the female mortality decline was from this cause. The mortality trend in pulmonary tuberculosis was very similar in Glasgow and throughout Scotland with the fall accounting for some 17-18% of the male mortality decline and 25-26% of the female (Table III). The decline, however, took place from a very much higher level in Glasgow than it did nationally. The great difference between the respiratory mortality experience in Glasgow and that of the whole of Scotland was the relative importance of the decline in non-tubercular respiratory disease. This accounts for fully 19% of the total mortality decline in Glasgow but only 5% of the Scottish decline (Table III). As Table VIII shows respiratory disease mortality was more than twice as high in 1861 in Glasgow as it was nationally and despite the decline it remained relatively higher throughout the period. Furthermore in Glasgow respiratory diseases caused a much higher proportion of mortality than they did nationally (Table IX). High death rates from respiratory diseases of all kinds were a characteristic of Scottish towns (Table X). Towns with high general mortality levels tended to have high respiratory disease mortality rates and conversely towns with lower rates of mortality had lower death rates from respiratory diseases.

Table X (1). Deaths/1,000 population, respiratory disease deaths and deaths from pulmonary tuberculosis/1,000 population in the eight principal towns of Scotland 1861-70.

	D.R.	Respiratory disease D.R.	Pulmonary T.B. D.R.
Greenock	31.3	41 8	40 2
Glasgow	30.4	61 7	40 6
Dundee	28.4	43 6	34 7
Paisley	27.8	38 5	35 5
Edinburgh	25.7	40 8	28 6
Perth	25.0	30 3	28 2
Aberdeen	24.2	33 6	28 6
Leith	23.5	30 0	18 5

The extremely high death rate from respiratory diseases in Glasgow had not passed unremarked. The city's first medical officer, Professor William Gairdner noted in 1870 that fatal as the common infectious diseases were "they are not comparable, in their effect on the death rate, to the diseases of the respiratory organs, which, taken in aggregate caused considerably more than a third of the whole mortality"; pulmonary tuberculosis accounted for a seventh of total mortality and such acute respiratory diseases as bronchitis, pneumonia, and pleurisy for a further fifth. Gairdner went on, "..... if means of prevention could be applied to the acute diseases of the lungs and the air passages and to consumption in Glasgow, so as to diminish their fatality by (say) one-third or one-fourth, a far greater saving in life and suffering would be effected than by any other sanitary interference whatever" (2).

As Gairdner predicted a reduction in mortality from respiratory diseases made the major contribution to the fall in mortality that took

1. Source, Supplement to the R.G.'s Reports on Births, Marriages and Deaths in Scotland during the ten years 1861-70, pp.49 & 112.
2. W.T. Gairdner, Annual Report of the Health of the City, 1870, (Glasgow, 1871), p.5-6.

place in the next forty years and hence led to a considerable saving of life in Glasgow.

The decline in mortality from all forms of tuberculosis accounts for 26% of the male and 31% of the female mortality decline in Glasgow between the 1860's and the first decade of the twentieth century and a slightly smaller proportion of the national mortality fall (25% of the male decline and 30% of the female, see Table III). The decline in tuberculosis of all kinds took place from much higher initial levels in Glasgow than in Scotland (Table XI, XIV and XV).

There were significant changes in the age pattern of tuberculosis mortality in the latter part of the nineteenth century; these changes are of importance as the disease was a major cause of death. At this time tuberculosis was common in children and young adults. Mortality from non-respiratory tuberculosis declined most at ages under five years (Table XIV) and much of this decline was due to the fall in mortality from tubercular meningitis (hydrocephalus) which declined both relatively and absolutely (Table XV). The relative decline of pulmonary tuberculosis was also most marked among the young (Tables XI and XIII). This period saw a shift in mortality from the disease as relatively fewer died under the age of 25 years and more between the ages of 25 and 64. Until the 1880's half of all the deaths from pulmonary tuberculosis occurred among those aged under 25 years but by the early twentieth century there had been a marked increase in the proportion of deaths from this condition among those over 25 years and a proportional decline in deaths from consumption in the young (Table XIII). Age specific mortality rates (Tables XII and XIII) show this decline among the young; phthisis remained a relatively more constant cause of death in the older age groups. Thus this period saw an absolute decline in mortality from pulmonary tuberculosis throughout Scotland at all ages but particularly

among the young, a shift in the mortality pattern of the disease occurring as relatively fewer died of the condition under 25 years of age and relatively more between the ages of 25 and 64 years. Clearly the rate at which children were succumbing to pulmonary tuberculosis was declining.

The decline in pulmonary tuberculosis cannot be accounted for by changes in diagnoses. The possibility that deaths from pulmonary tuberculosis might have been transferred from this category and classified with one of the other respiratory diseases is rendered extremely unlikely as the death rate from all other respiratory diseases also declined significantly. In addition the sequence of the mortality patterns of the diseases differed. In Scotland mortality rates from respiratory diseases fell only in the 1890's while pulmonary tuberculosis mortality fell from the 1870's. In Glasgow mortality rates for tubercular and non-tubercular respiratory diseases fell consistently from the 1870's. Figure 10 shows that women had a consistently higher rate of pulmonary tuberculosis than men until the mid-1890's when it fell below the male rate ⁽¹⁾. The pattern in non-tubercular respiratory diseases is different; male mortality rates are consistently higher than the female rates. Thus the downward trend in pulmonary tuberculosis mortality appears to be real and not merely the result of diagnostic change.

After tuberculosis and respiratory diseases the next most important factors contributing to the decline in the death rate are the fevers ⁽²⁾. Typhus, typhoid, and simple continued fever together

1. See G. Rosen, "Disease, debility, and death", in H.J. Dyos & M. Wolff, eds. The Victorian City, II (1973), p.642.
2. The term "fever" was used to include typhus, typhoid (enteric) fever and simple continued fever. In the first half of the nineteenth century Glasgow had been swept by epidemics of "fever" in 1818, 1828, 1837 and 1847, see below p.98ff. Between 1865-7 deaths from so-called infantile remittant fever were distinguished from typhoid; thereafter they are included with typhoid and so for the years 1865-7 the two have been added together.

account for some 16% of the mortality fall in Glasgow and for 17% of the male and 20% of the female mortality decline in Scotland. The graphs (Figure 4 & 5) show the general fall in mortality from typhus and typhoid with typhoid falling fairly steadily from 1880 while typhus fell very rapidly in Glasgow from the mid-1860's (when it was first distinguished from typhoid by the Registrar General). As with respiratory diseases and tuberculosis, both typhus and typhoid declined from much higher initial levels in Glasgow than in Scotland.

Scarlet fever makes the next largest contribution to the overall mortality decline with mortality rates falling from a much higher level in Glasgow than nationally and declining most steeply in the mid-1870's and '90's (Figure 6). The decline of the disease accounts for much more of the overall mortality fall in Scotland (15%) than in Glasgow (where it accounted for only 10% of the decline, see Table III).

Mortality from diarrhoeal diseases (which include diarrhoea, dysentery, enteritis, gastro-enteritis, and cholera) prevailed at very much higher levels in Glasgow than in Scotland as a whole throughout the period, (Figure 7). Together these conditions account for slightly more of the national (some 7%) than of the Glasgow mortality decline (6%, see Table III) (1).

Whooping cough was much more prevalent in Glasgow than it was nationally and it was almost twice as fatal in Glasgow than in Scotland

1. Although there had been outbreaks of cholera in Glasgow in 1832, 1848-9, and 1843-4, there were none in our period, despite the outbreaks elsewhere in the country. Throughout this period a small number of deaths in the R.G.'s data are attributed to "cholera", "simple cholera", or "cholera nostra". These deaths were not due to asiatic cholera which is not endemic in the United Kingdom but, presumably, to some other acute diarrhoeal condition.

generally (see Figure 11). The fall in mortality from this disease, which has a characteristically higher mortality in girls, accounts for 7% of the female mortality decline and 5% of the male mortality decline in Glasgow but only 3% of the male and 4% of the female mortality decline in Scotland.

Diphtheria and croup appear to have caused the same amount of fatality in Glasgow as in Scotland (see Figure 8) but in Glasgow their decline accounts for only 4% of the total mortality decline compared with 8% nationally (Table III). Diphtheria was first classified as a separate disease by the Registrar General in 1857 and was then believed to be a new, hitherto unknown form of epidemic disease which was described at first as "ulcerated sore throat", "sloughing sore throat of a diphtheretic character", "croup with sloughing sore throat", or simply "diphtheria" (1), and it was frequently confused with scarlet fever (2). The mortality trends of diphtheria, and of croup, (a term often applied to cases of diphtheria, see Figure 8) shows that by the end of the century deaths from this cause were now attributed to "diphtheria" as diagnosis became more precise (3).

Although smallpox mortality dropped steeply in the period under consideration (see Figure 12 and Table XVIb), it was not one of the major causes of death in the middle of the nineteenth century (Table III). The drop in mortality from this cause accounts for only 1.8% of the male mortality decline and 1.6% of the decline in female mortality in Glasgow and for 3% of the total Scottish mortality decline. The pattern of smallpox mortality did change, however. In Glasgow between 1855 and 1870 at least 70% of all smallpox deaths each year occurred in children

1. R.G. Return for the Quarter (P.P.1858, XIII), p.5.
2. R.G. Return for the Quarter (P.P. 1858,XV)p5 and Rosen op.cit. p.653.
3. *ibid.* p. 666.

under ten years old. In the early 1870's the proportion of smallpox deaths among the under tens fell and thereafter, when there was sufficient smallpox deaths in the city for the age-distribution of the disease to emerge, relatively few occurred in children; in the epidemic of 1901, for example, only 15% of smallpox deaths were in children under ten years (see Table XVIa) (1).

The other infectious disease to be considered is measles, which caused a far higher rate of mortality in Glasgow than it did nationally (Table III). Its decline, however, was responsible for only some 1% of the overall mortality decline.

In their study of mortality in nineteenth century England and Wales McKeown and Record found that the fall in mortality was largely due to the decline in death rates of tuberculosis, *typhus, typhoid and simple continued fever, scarlet fever, diarrhoea,* dysentery, and cholera, and smallpox (2). The pattern of this mortality decline is very similar to that of Scotland (between 1861-70 and 1901-10) with two important exceptions. Mortality rates from pulmonary tuberculosis were much higher in England and Wales and account for some 44% of the mortality decline compared with 18% of the male and 25% of the female mortality decline in Scotland. On the other hand mortality from other forms of respiratory diseases actually rose relatively in England and Wales between the middle and end of the nineteenth century, whereas in Scotland these diseases account for over 5% of the total mortality decline. Perhaps this difference is in part explained by different practices in certifying death in the two countries.

The most obvious difference between the pattern of Glasgow mortality and the national, Scottish pattern is that mortality from all

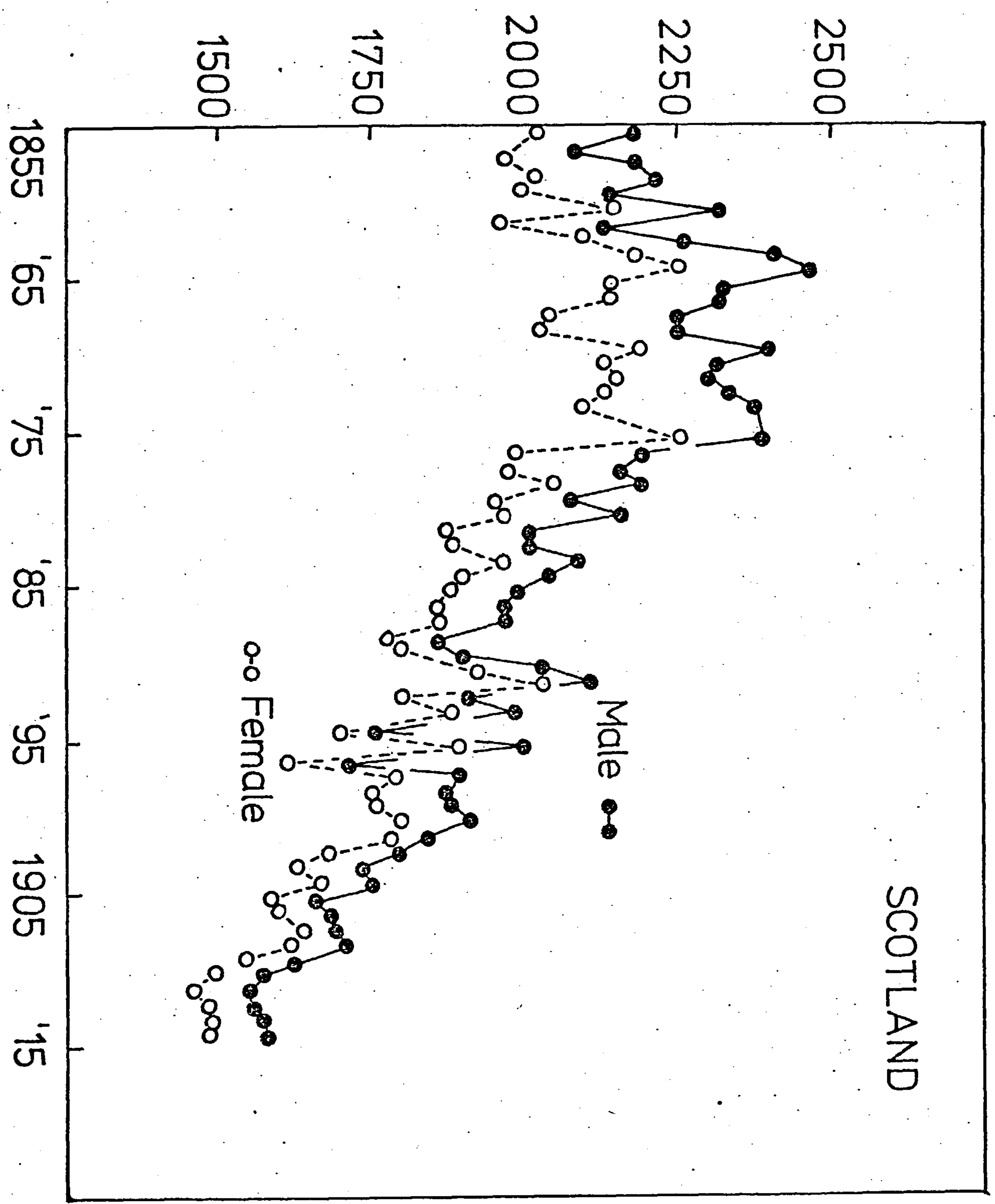
1. For the relation of vaccination to the decline in smallpox, see below, p.292 ff.
2. McKeown & Record, op.cit. In this study mortality was analysed in the decades 1851-60 and 1891-1900.

causes was much higher in Glasgow and its decline between the 1860's and the first decade of the twentieth century was much steeper. The relative decline of scarlet fever, diarrhoeal diseases, diphtheria, and smallpox was greater nationally than in Glasgow. The steep fall in Glasgow mortality seems to have been due mainly to a relatively greater decline in respiratory diseases of all kinds (including whooping cough). The mortality rates of respiratory diseases and of pulmonary tuberculosis were very high in the other Scottish towns which had high mortality rates. This suggests that these diseases were associated with urban environmental conditions. Particular attention will have to be paid to the causes of this. Much of the mortality decline was in the infectious diseases of childhood and inevitably the greatest reductions in death rates occurred among the young. It is the purpose of this study to discover how the decline in mortality in Glasgow between the 1860's and the early years of the twentieth century were related to the general medical, hospital, and public health improvements in the city.

Figures

- 1(a) Scotland, deaths from all causes/100,000 living.
(b) Glasgow, deaths from all causes/100,000 living.
- 2 Infant Mortality, Glasgow and Scotland, deaths/1000 live births.
- 3(a) Deaths at different ages/100,000 living in census years, Scotland.
(b) Deaths at different ages/100,000 living in census years, Glasgow.
- 4(a) Typhus, Scotland, deaths/100,000 living.
(b) Typhus, Glasgow, deaths/100,000 living.
- 5(a) Typhoid, Scotland, deaths/100,000 living.
(b) Typhoid, Glasgow, deaths/100,000 living.
- 6(a) Scarlet fever, Scotland, deaths/100,000 living.
(b) Scarlet fever, Glasgow, deaths/100,000 living.
- 7(a) Diarrhoeal diseases, Scotland, deaths/100,000 living.
(b) Diarrhoeal diseases, Glasgow, deaths/100,000 living.
- 8(a) Diphtheria, croup, Scotland, female deaths/100,000 living
(male deaths follow the same trend).
(b) Diphtheria, croup, Glasgow, male deaths/100,000 living
(female deaths follow the same trend).
- 9 Smallpox, Scotland, both sexes, deaths/100,000 living.
- 10(a) Phthisis, Scotland, deaths/100,000 living.
(b) Phthisis, Glasgow, deaths/100,000 living.
- 11(a) Whooping cough, Scotland, both sexes, deaths/100,000 living.
(b) Whooping cough, Glasgow, female deaths/100,000 living
(male death rate similar but slightly lower).
- 12 Smallpox, Glasgow, deaths/100,000 living.
- 13(a) Measles, Scotland, both sexes, deaths/100,000 living.
(b) Measles, Glasgow, male deaths/100,000 living
(female death rate similar but slightly lower).

Death rates / 100,000 living



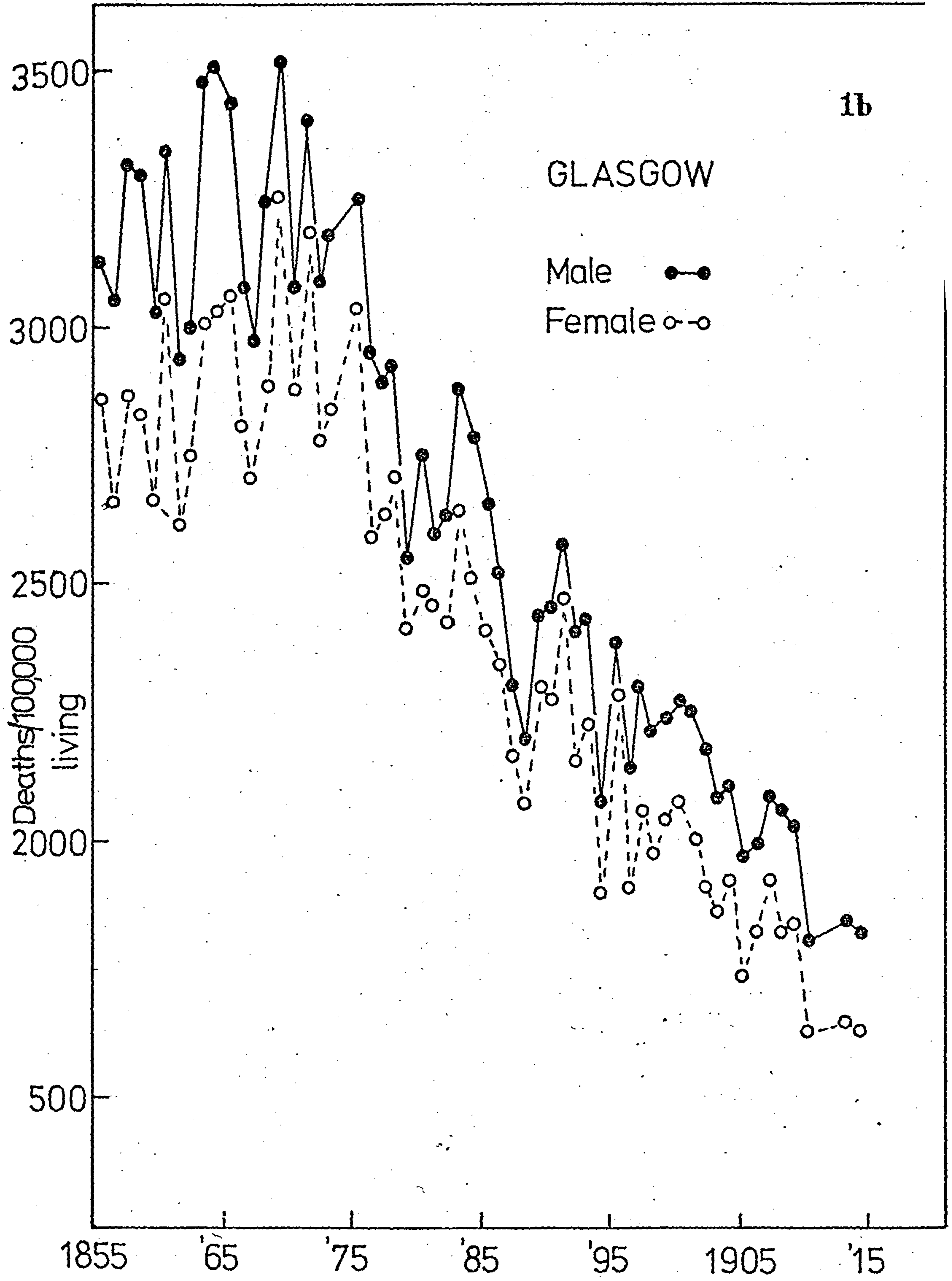
SCOTLAND

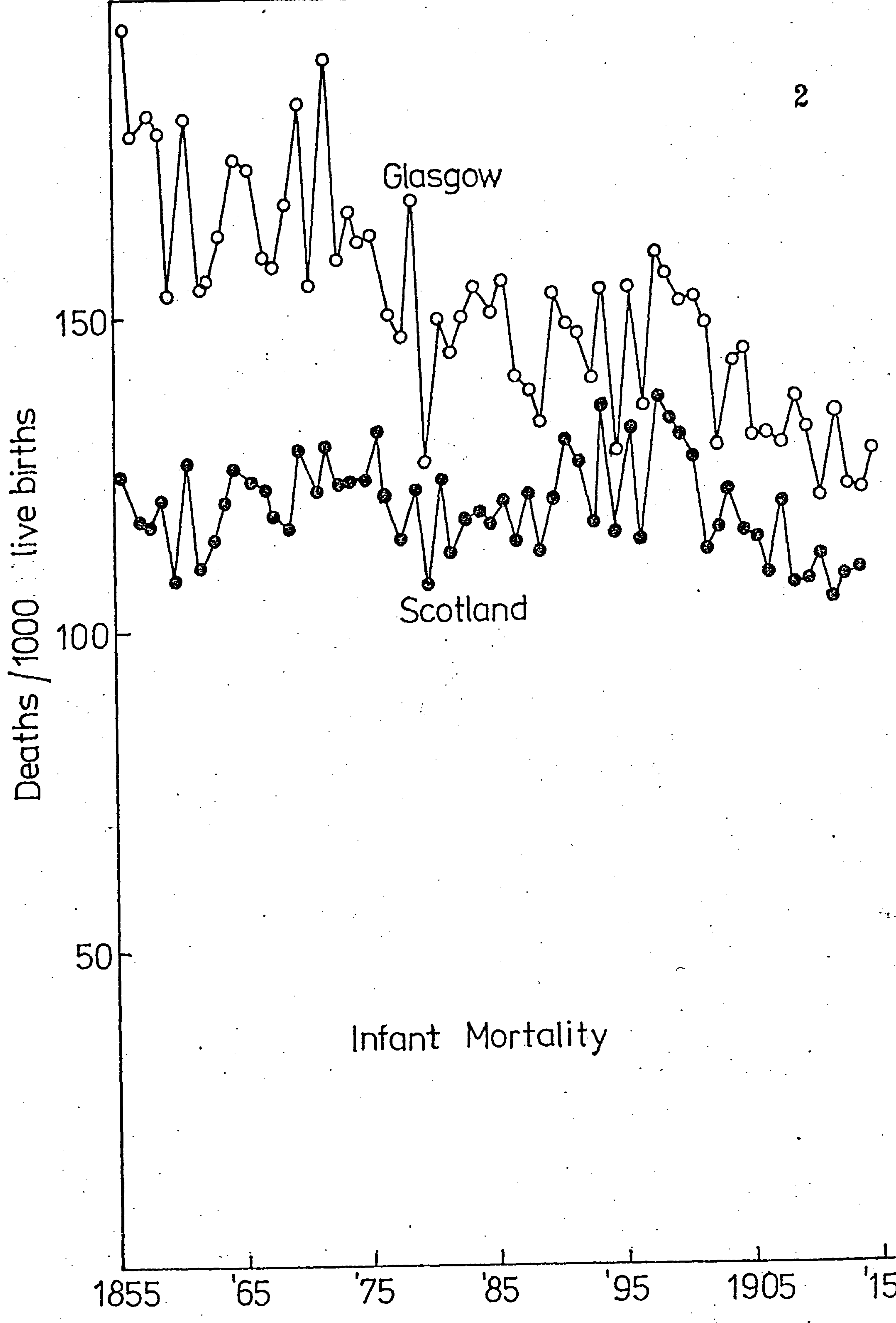
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GLASGOW

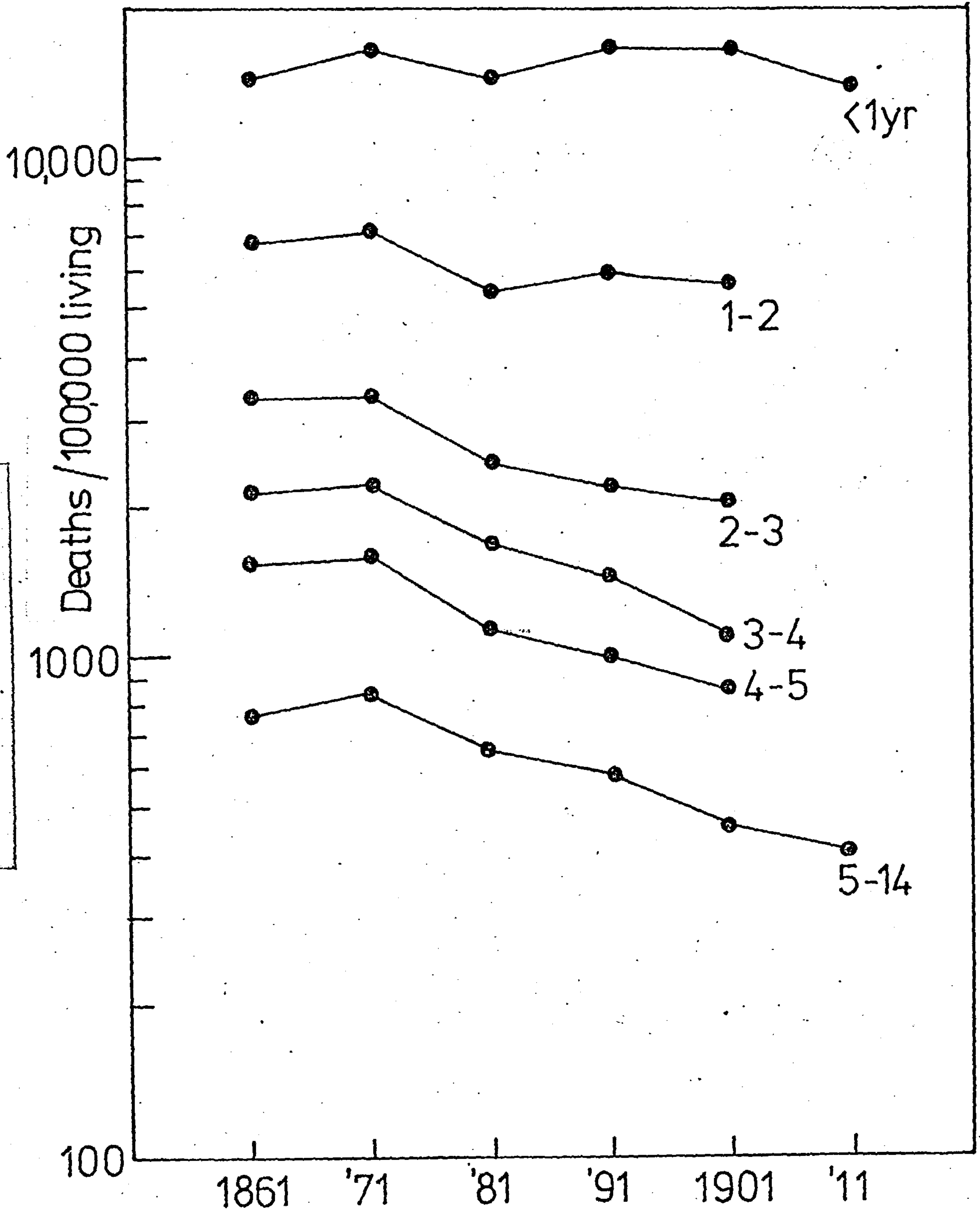
Male ●—●

Female ○—○



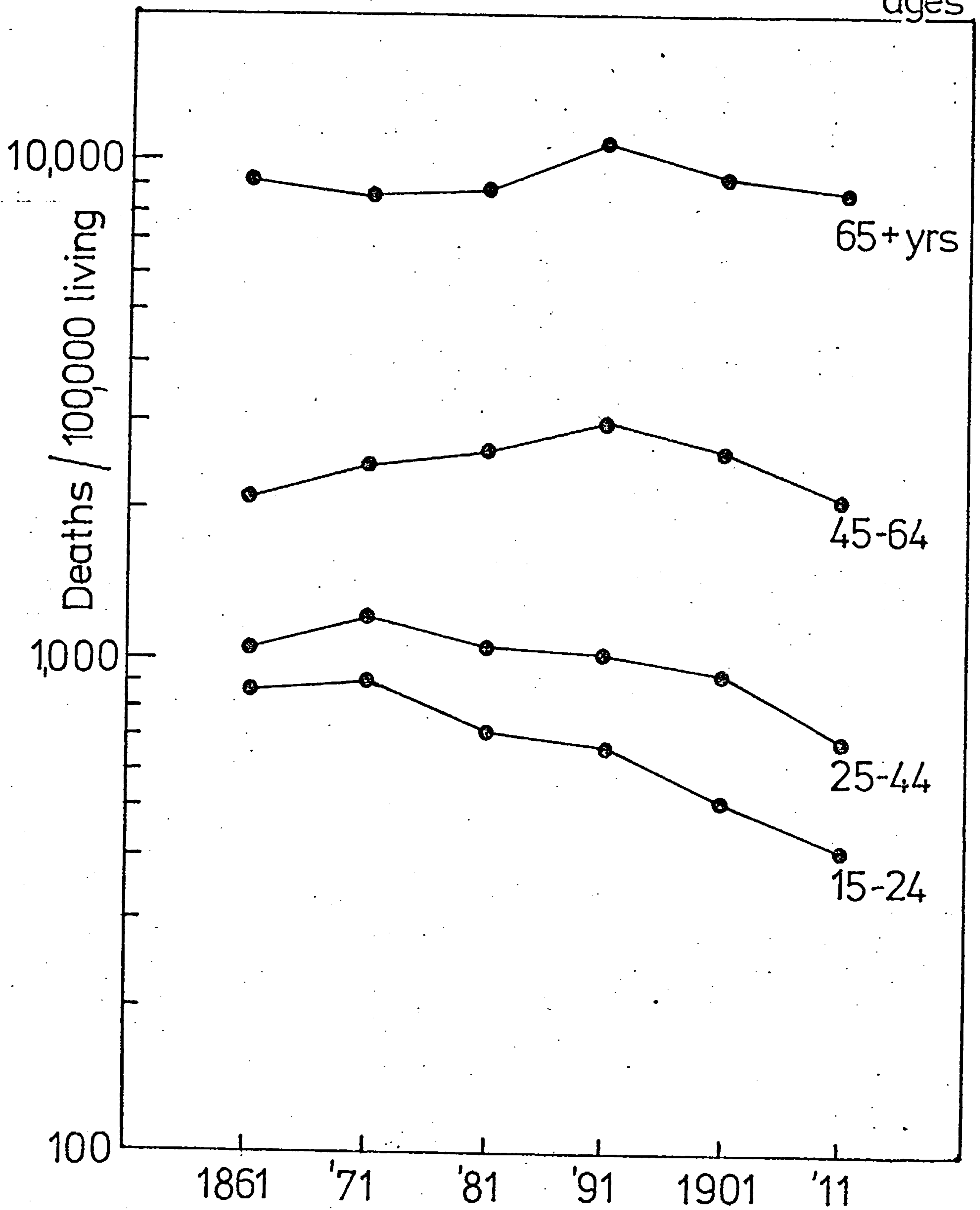


SCOTLAND Male deaths/100,000 living at different ages

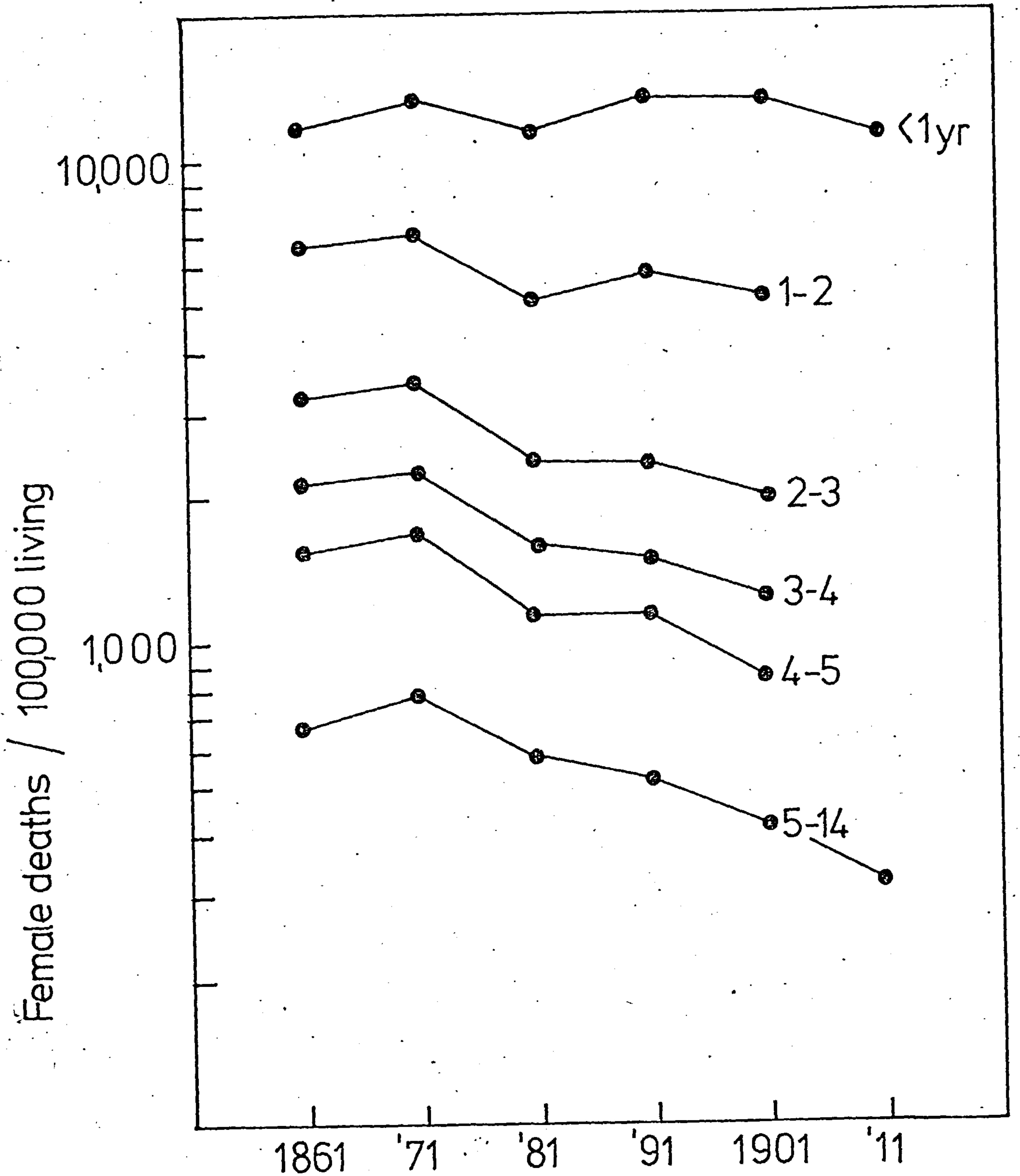


3ia

SCOTLAND Male deaths/100,000 living at different ages

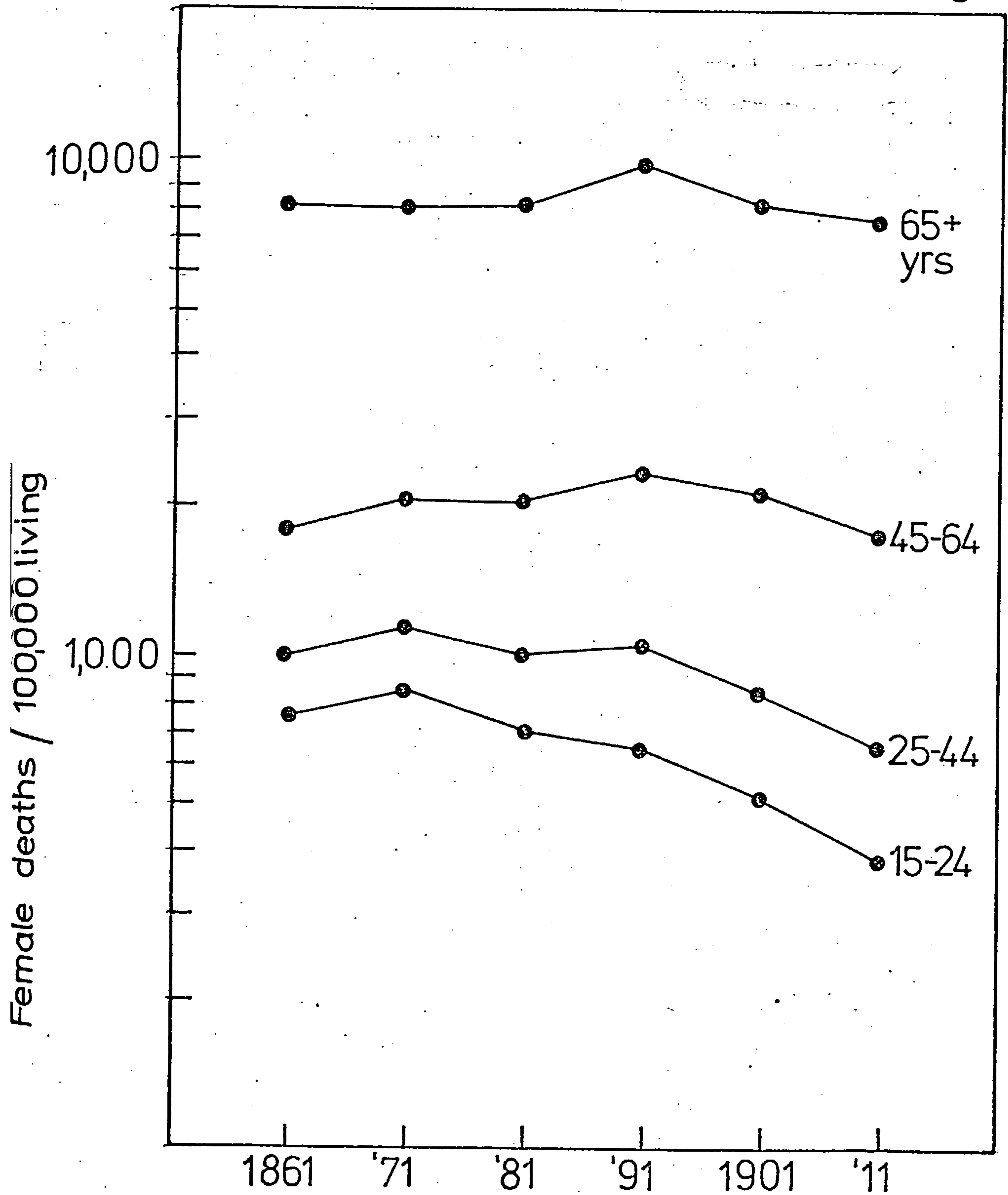


SCOTLAND Female deaths/100,000 living at different ages

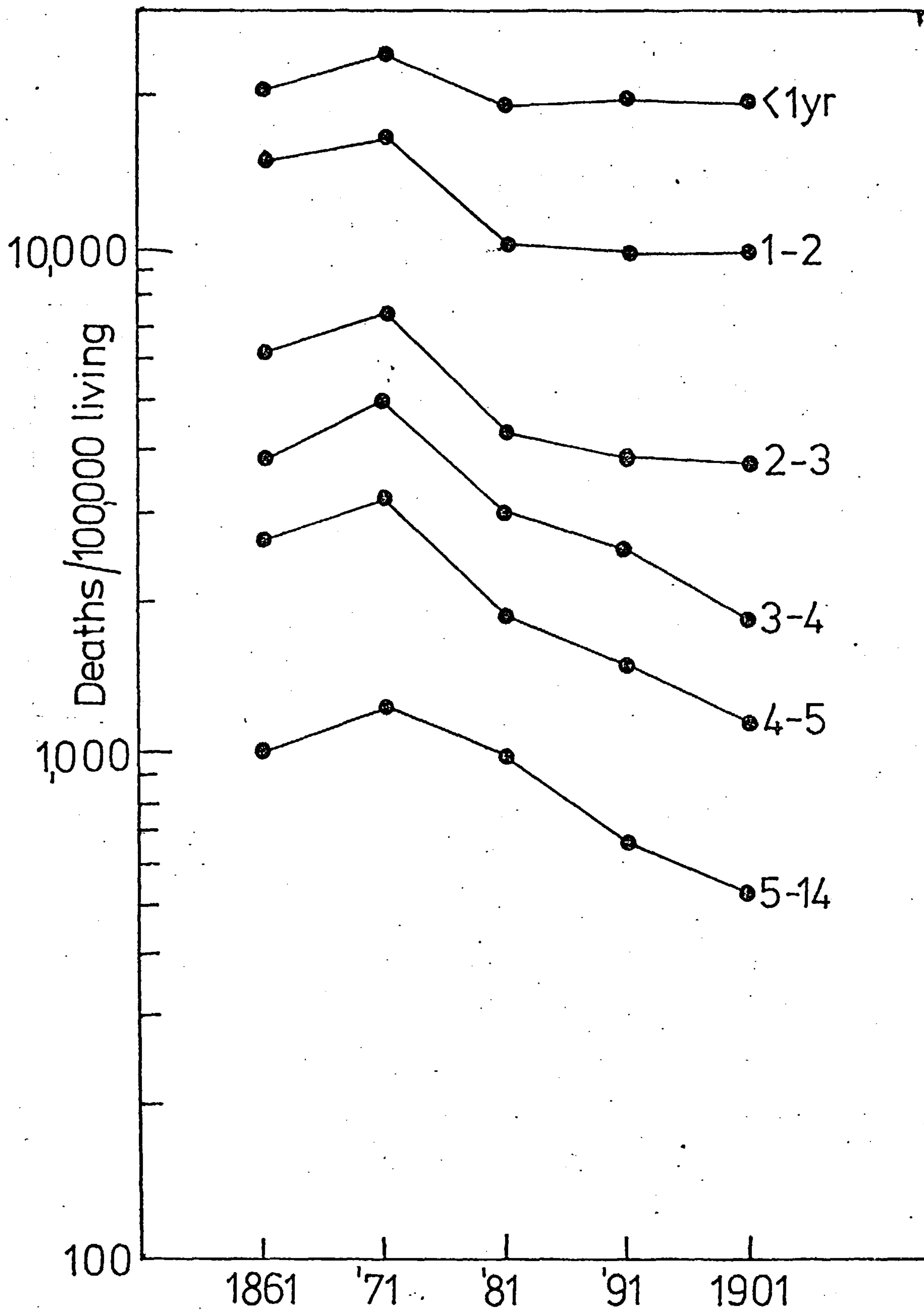


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SCOTLAND Female deaths/100,000 living at different ages

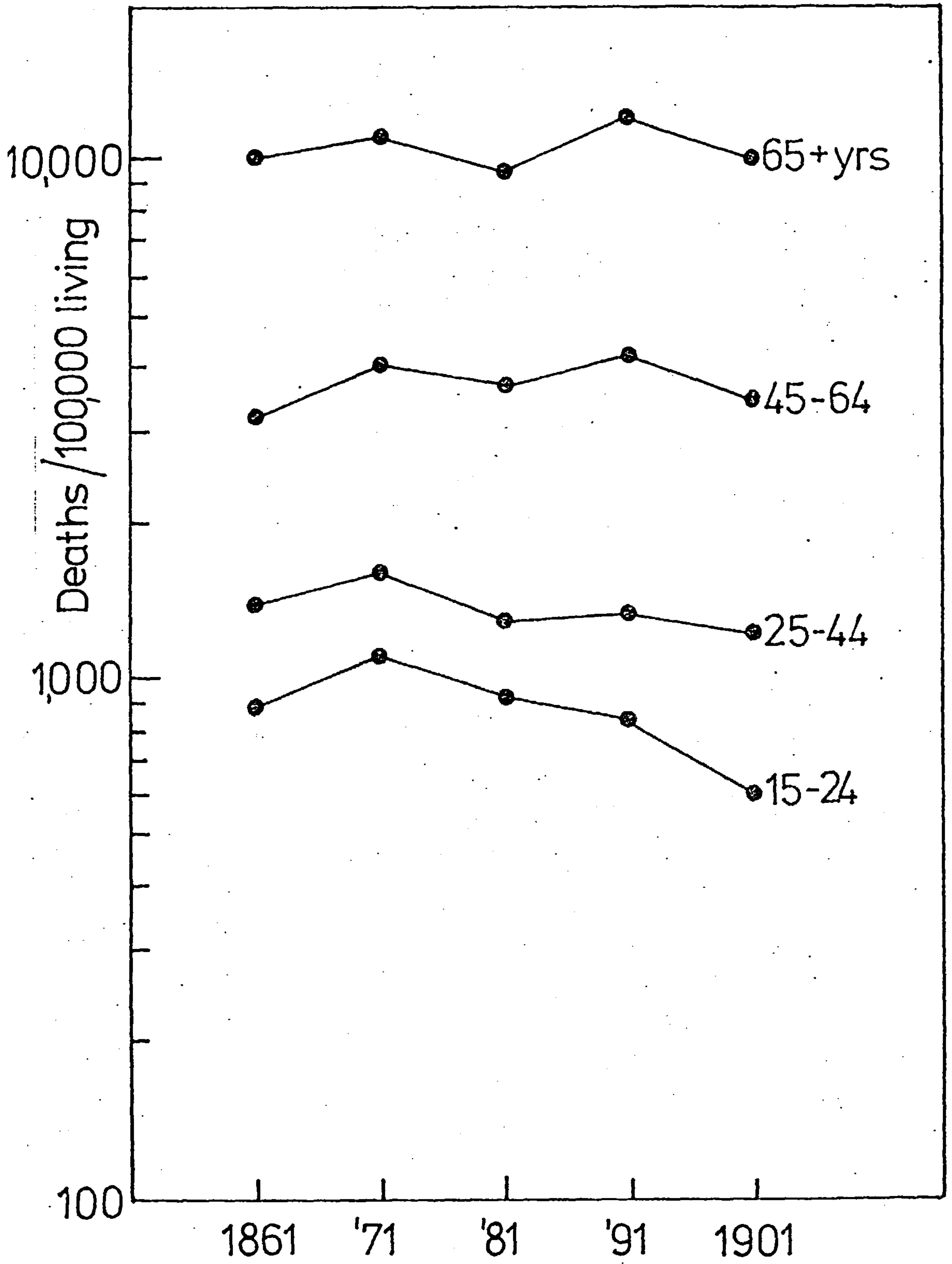


GLASGOW Male deaths/100,000 living at different ages



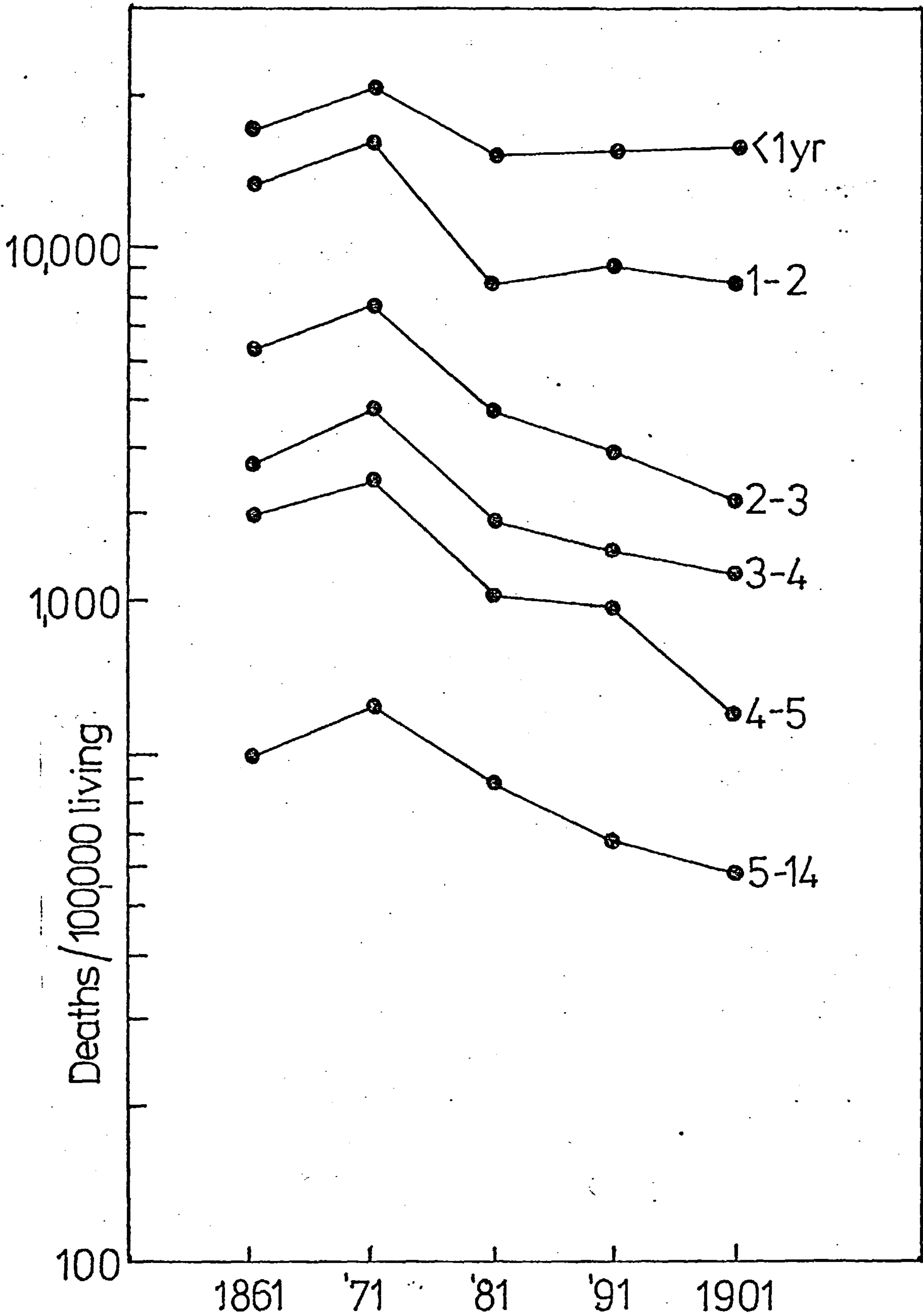
GLASGOW Male deaths/100,000 living at different ages

3a



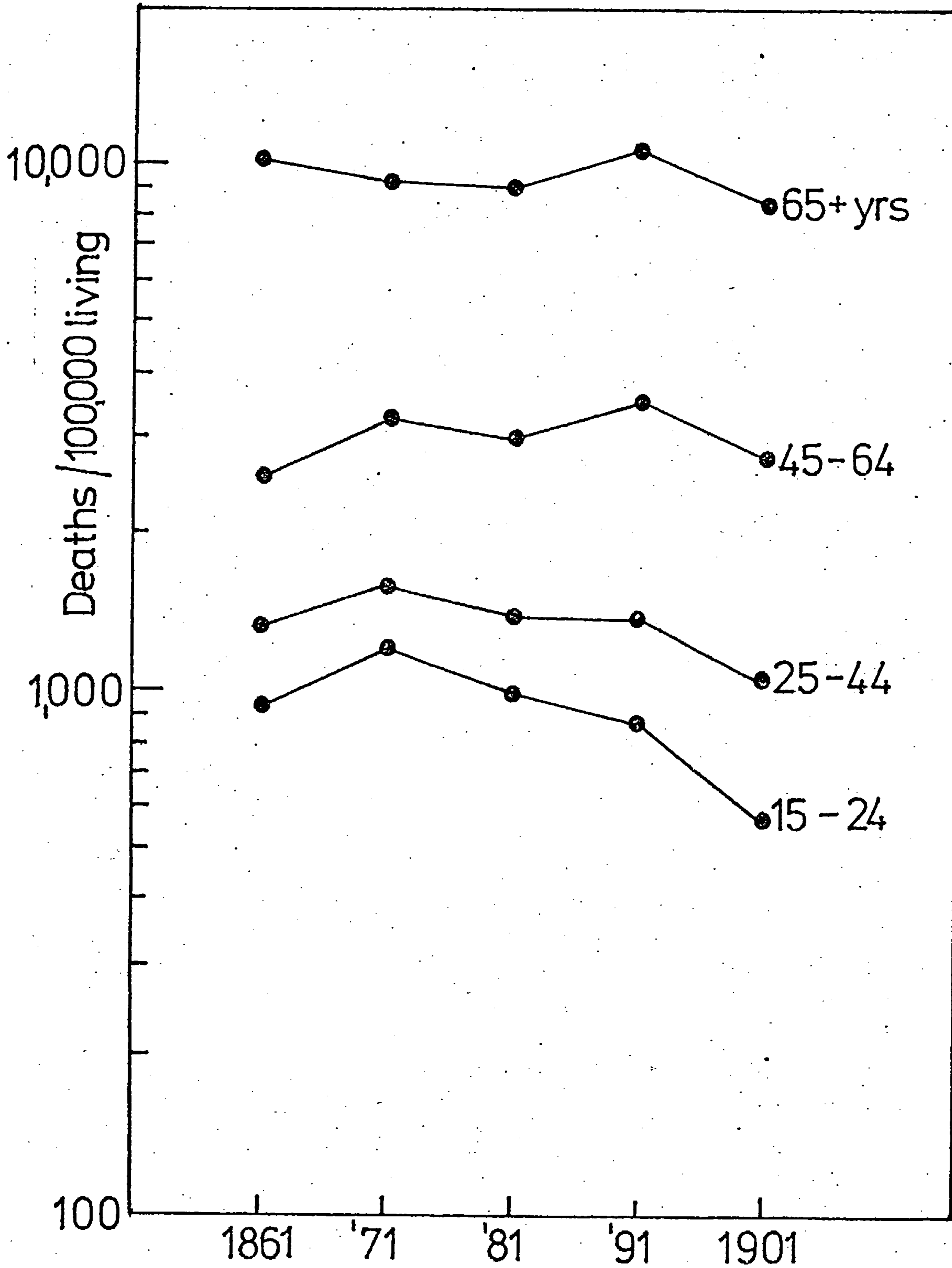
GLASGOW Female deaths/100,000 living at different ages

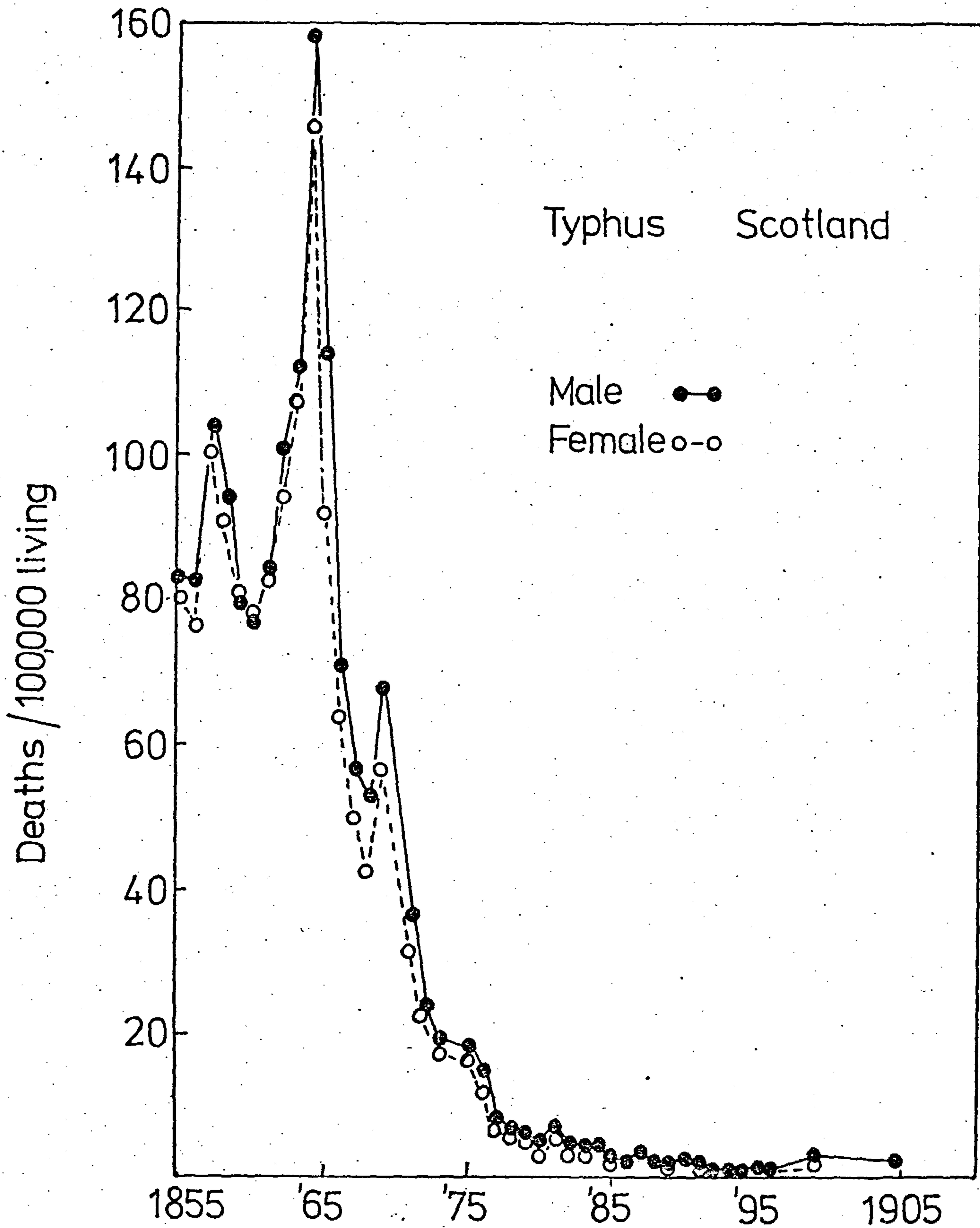
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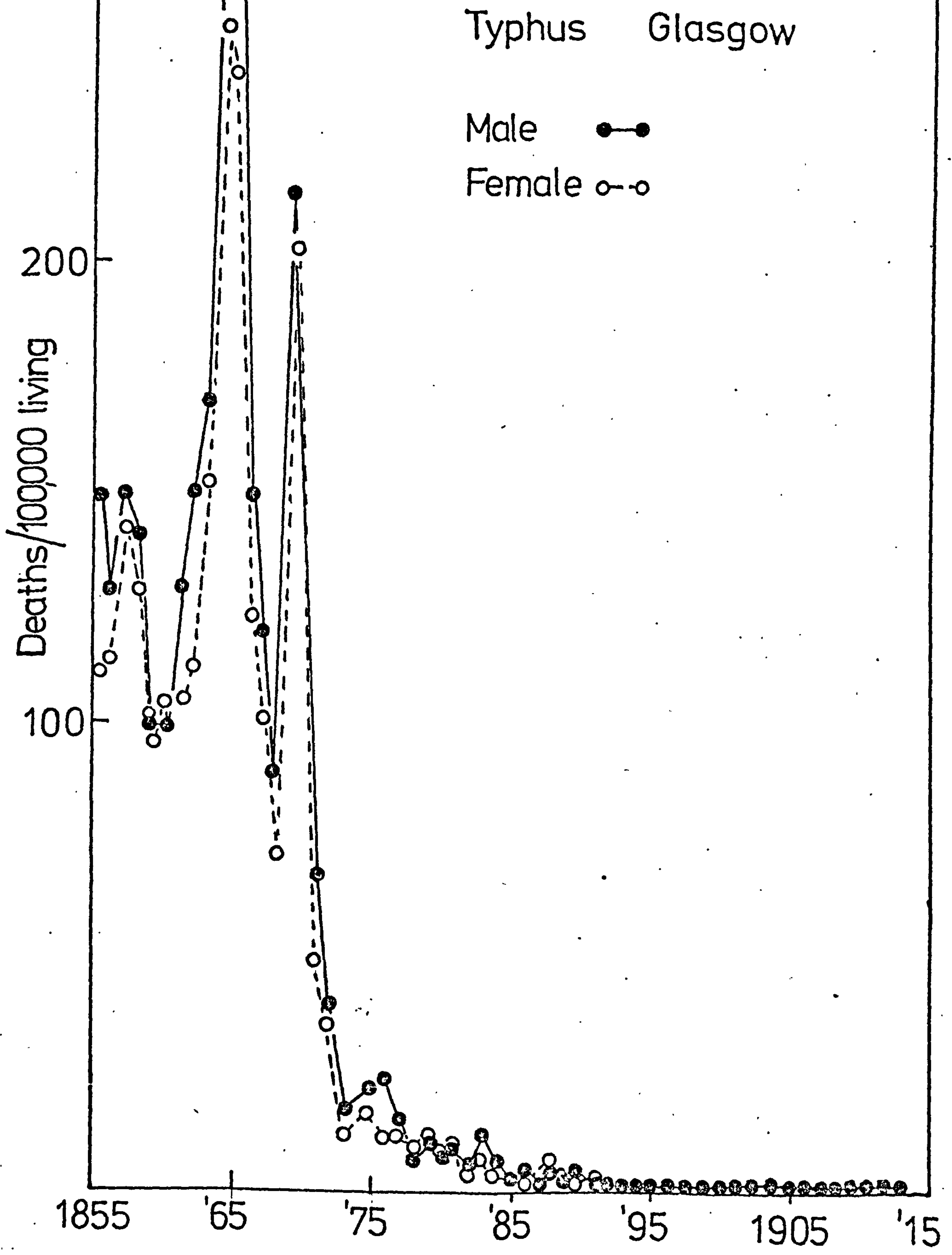
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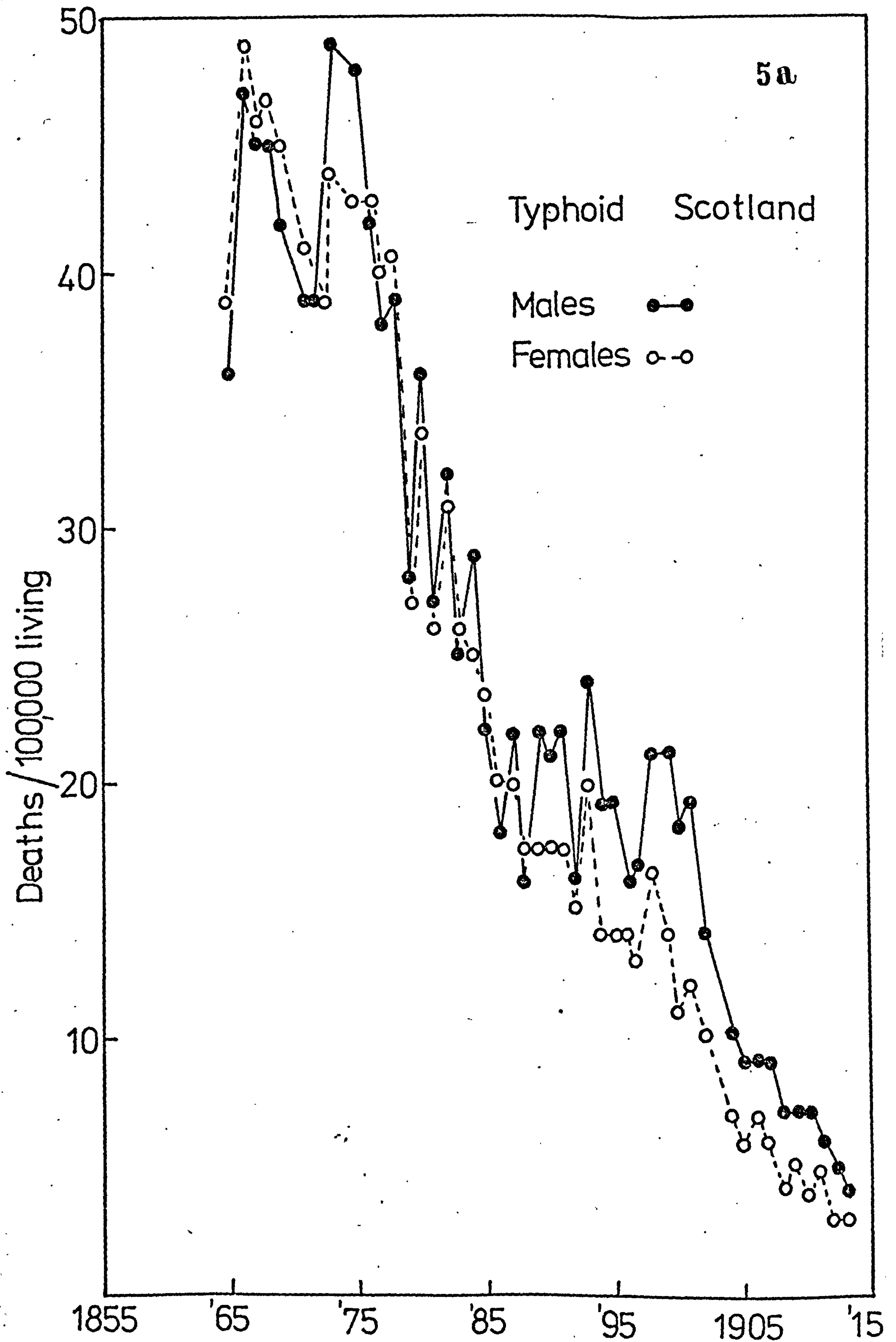
GLASGOW Female deaths/100,000 living at different ages

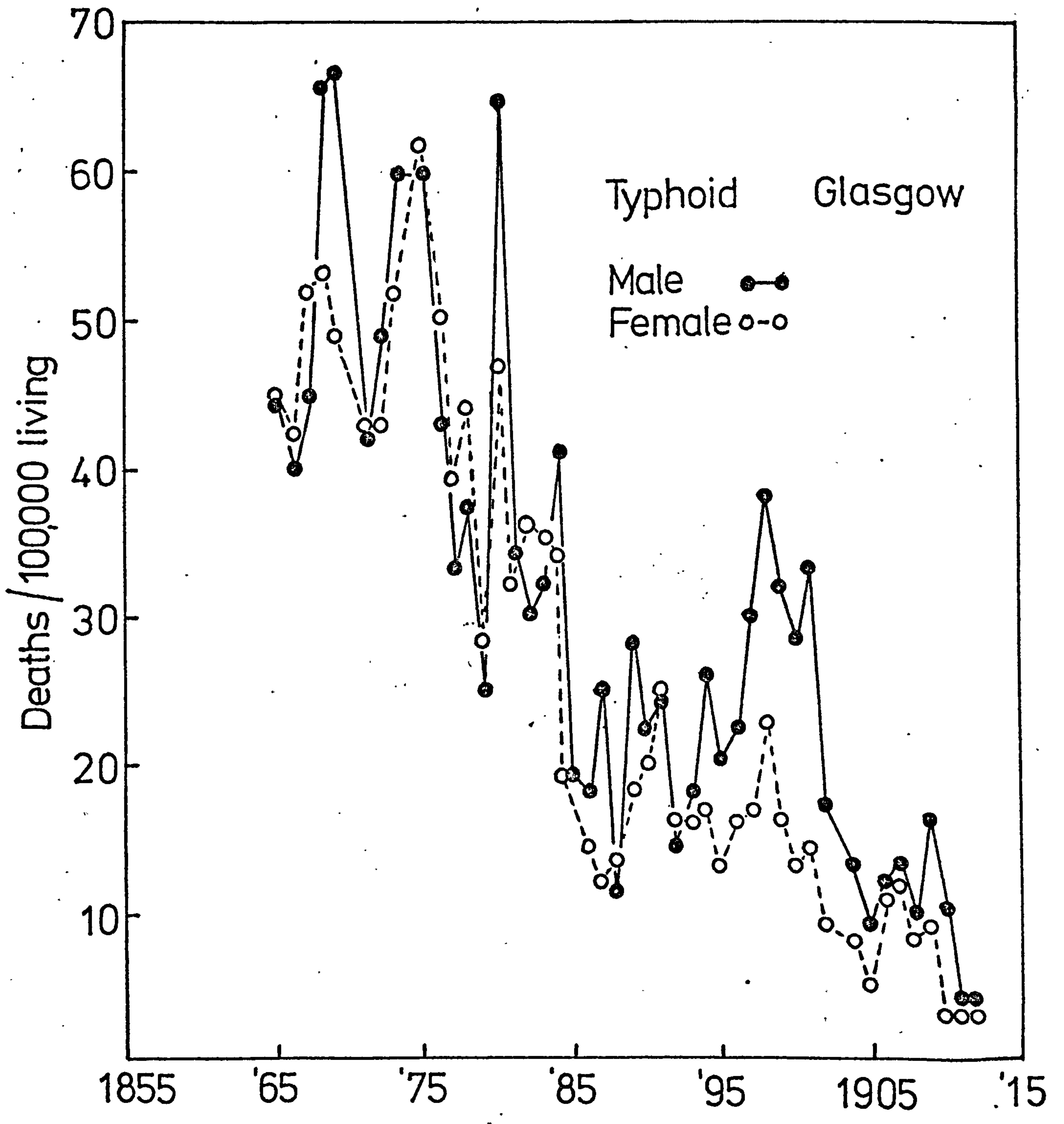


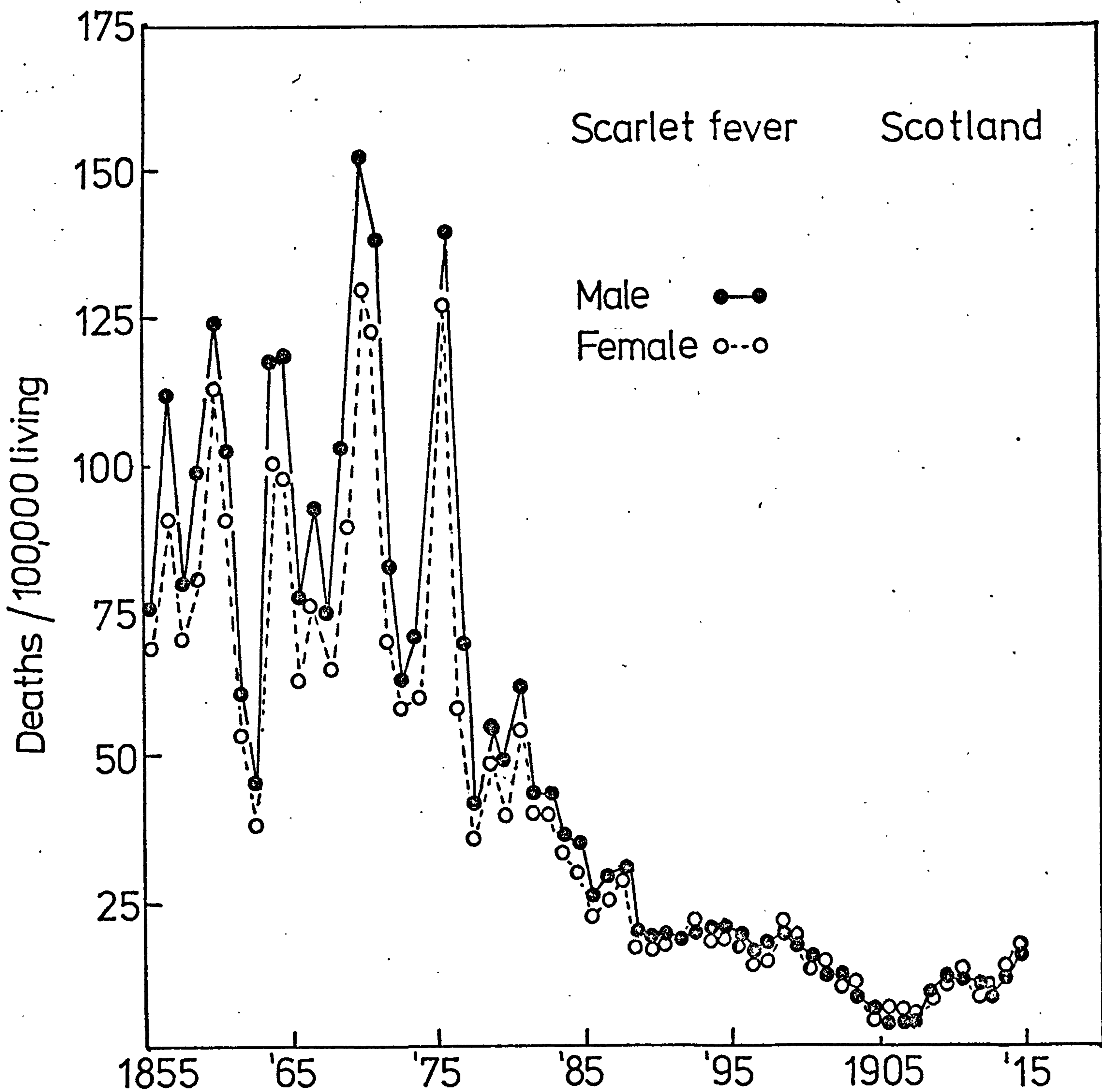


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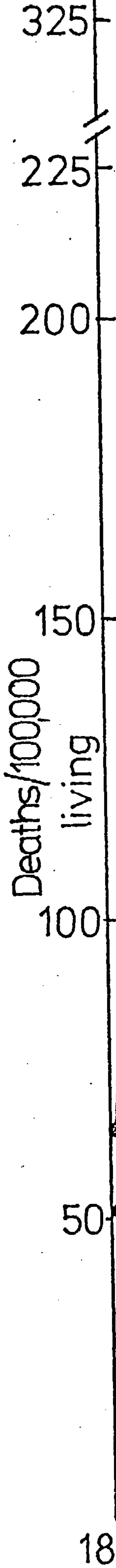
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Scarlet fever Glasgow

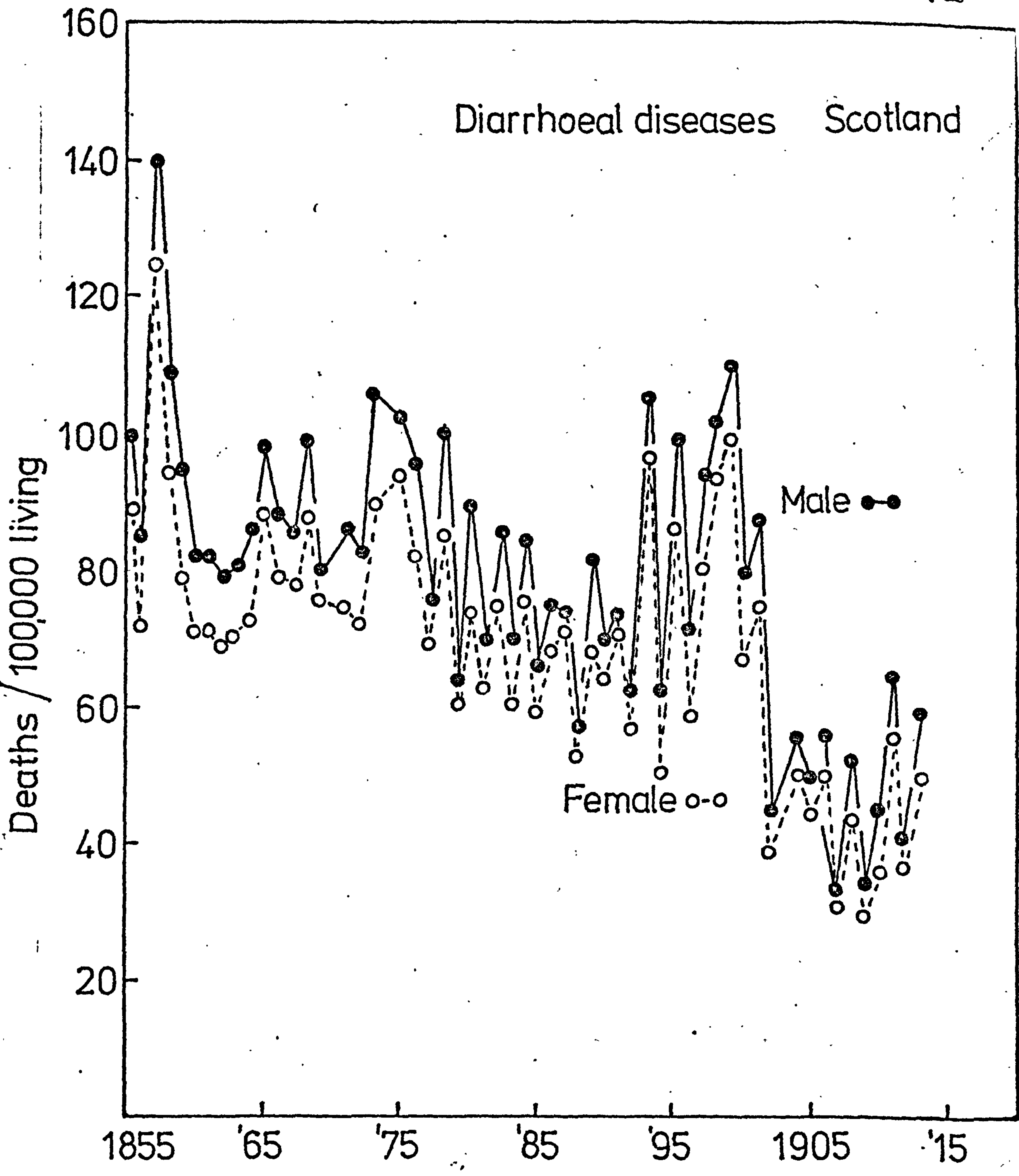
Males ●—●

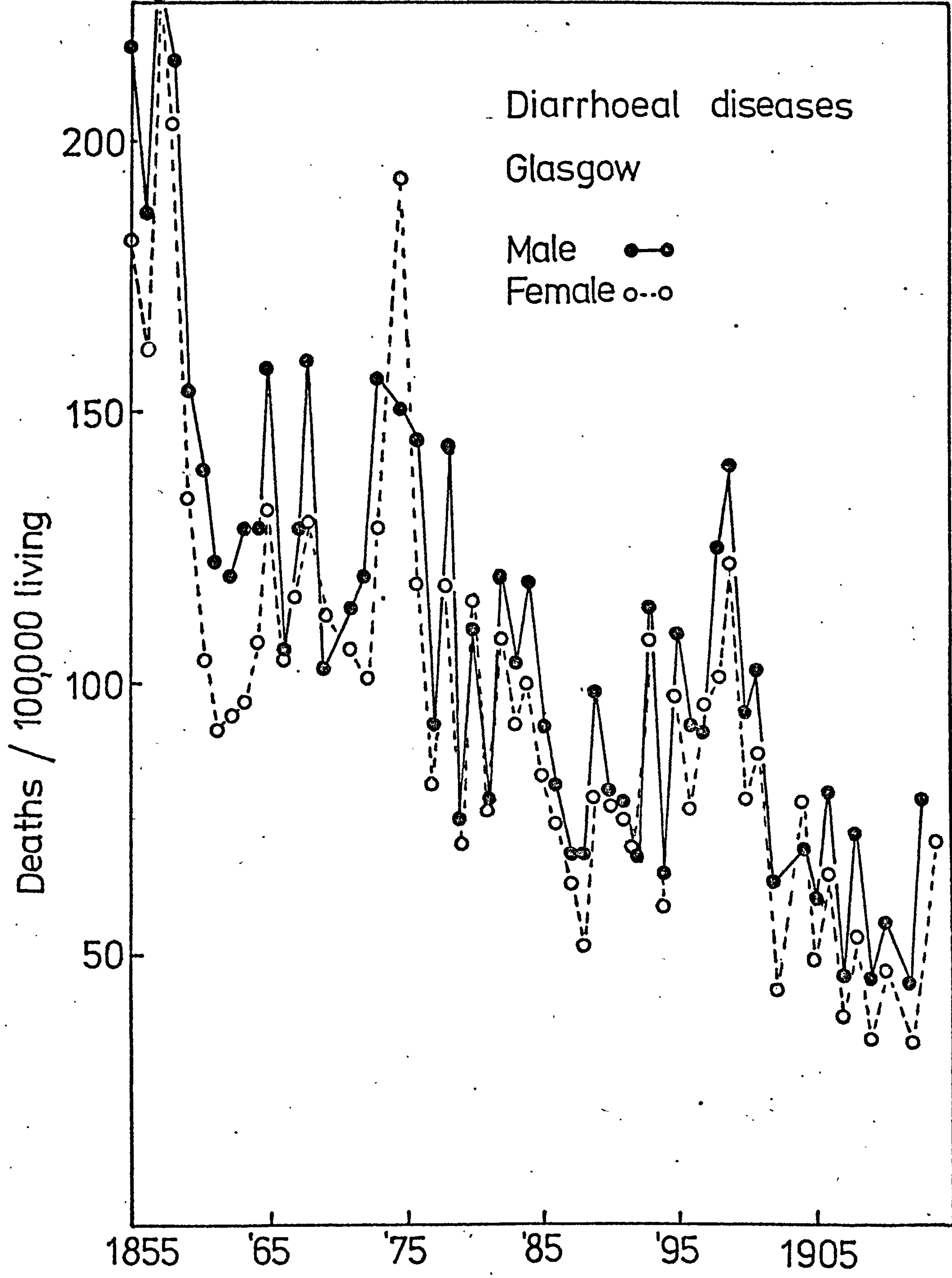
Females ○-○

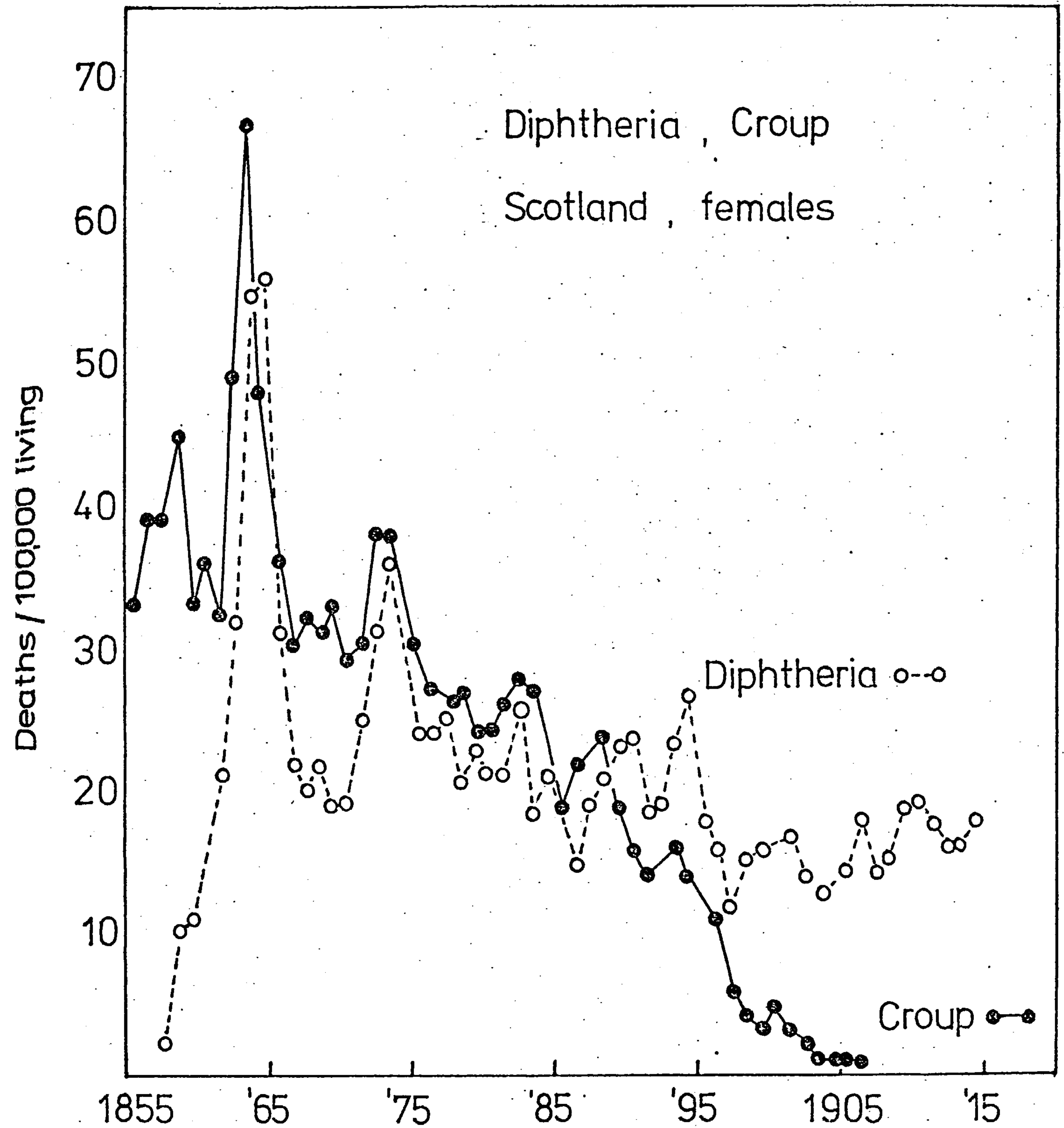
Deaths/100,000 living



1855 65 75 85 95 1905 15







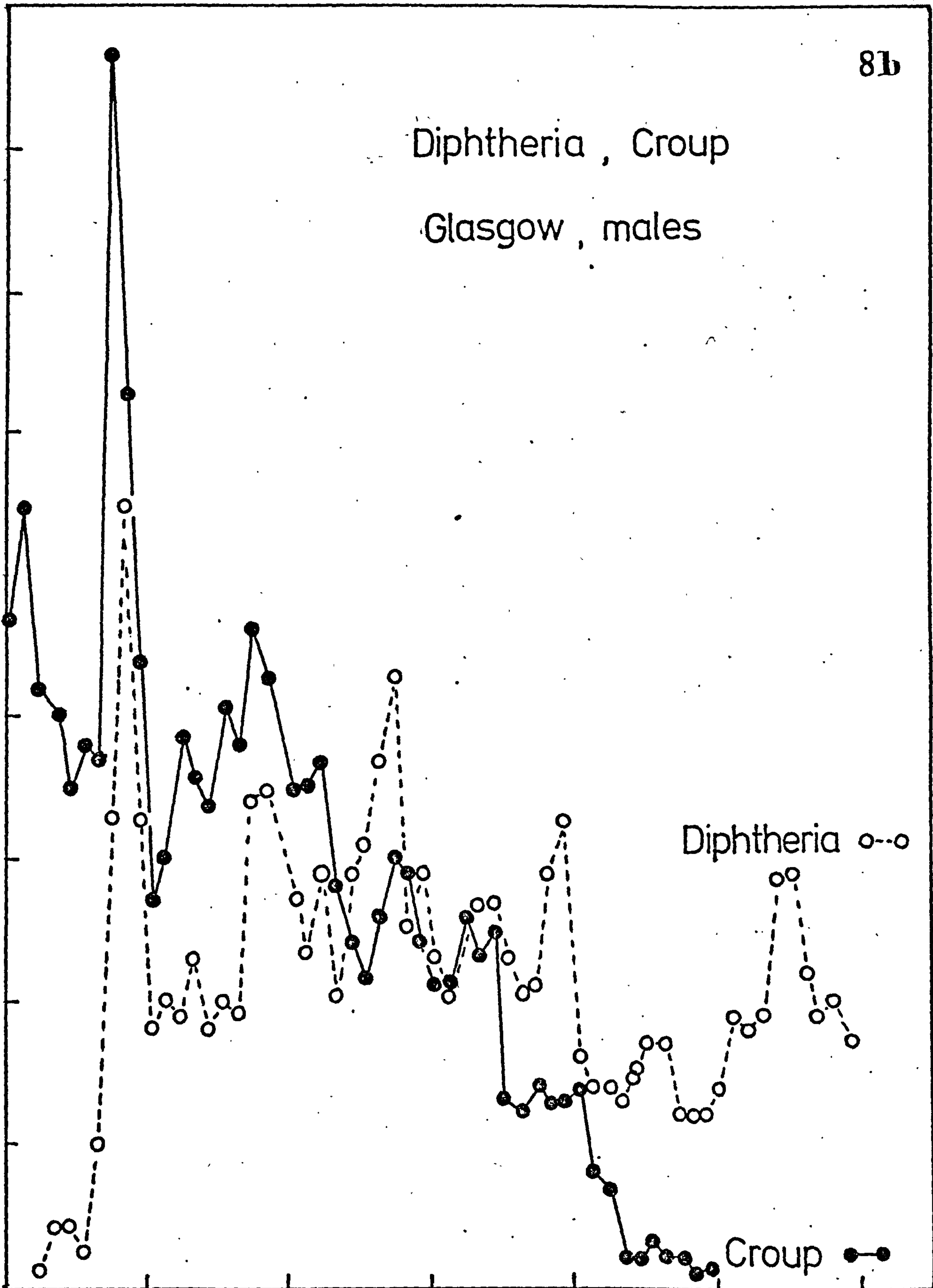
Diphtheria , Croup
Glasgow , males

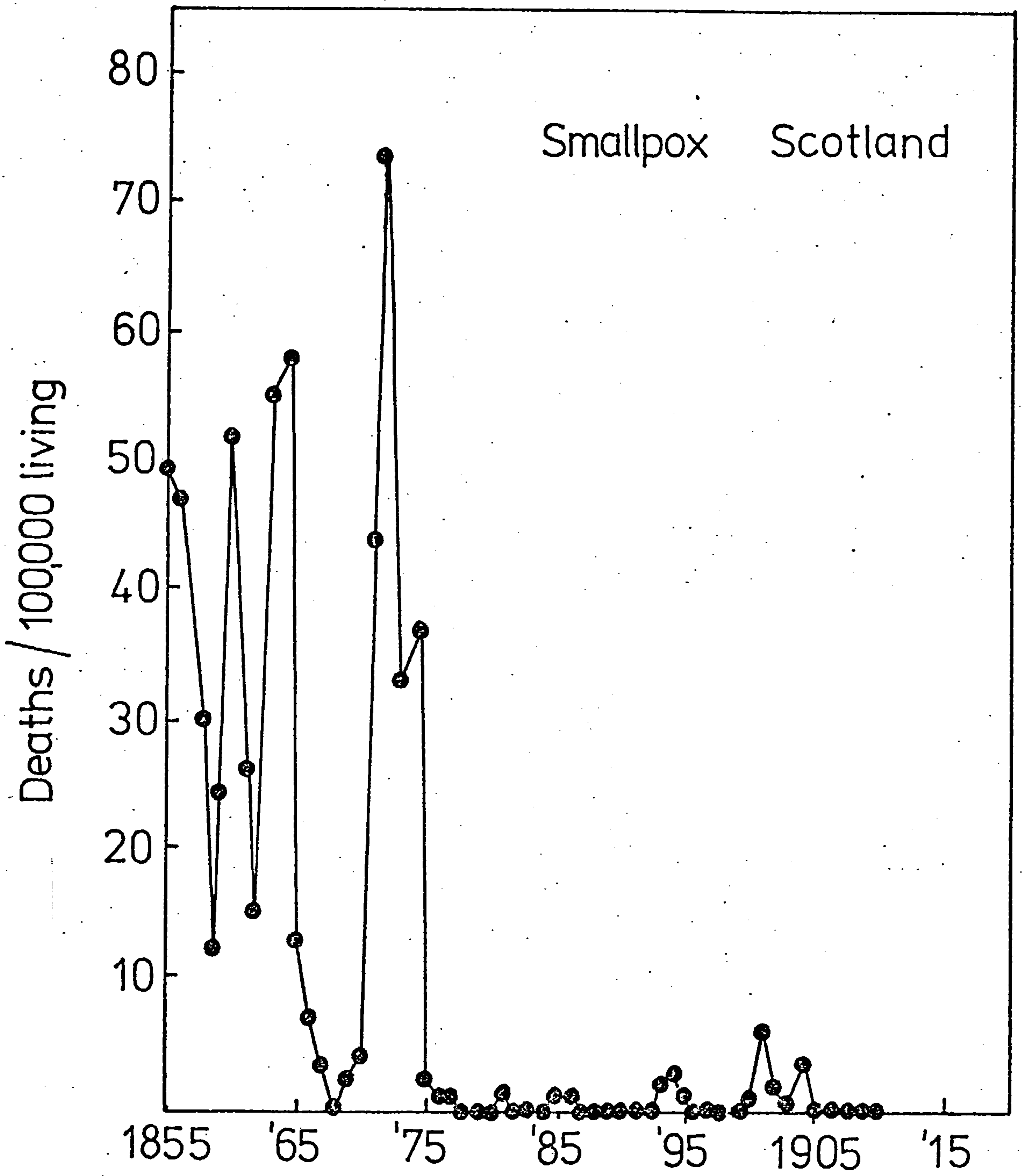
Deaths / 100,000 living

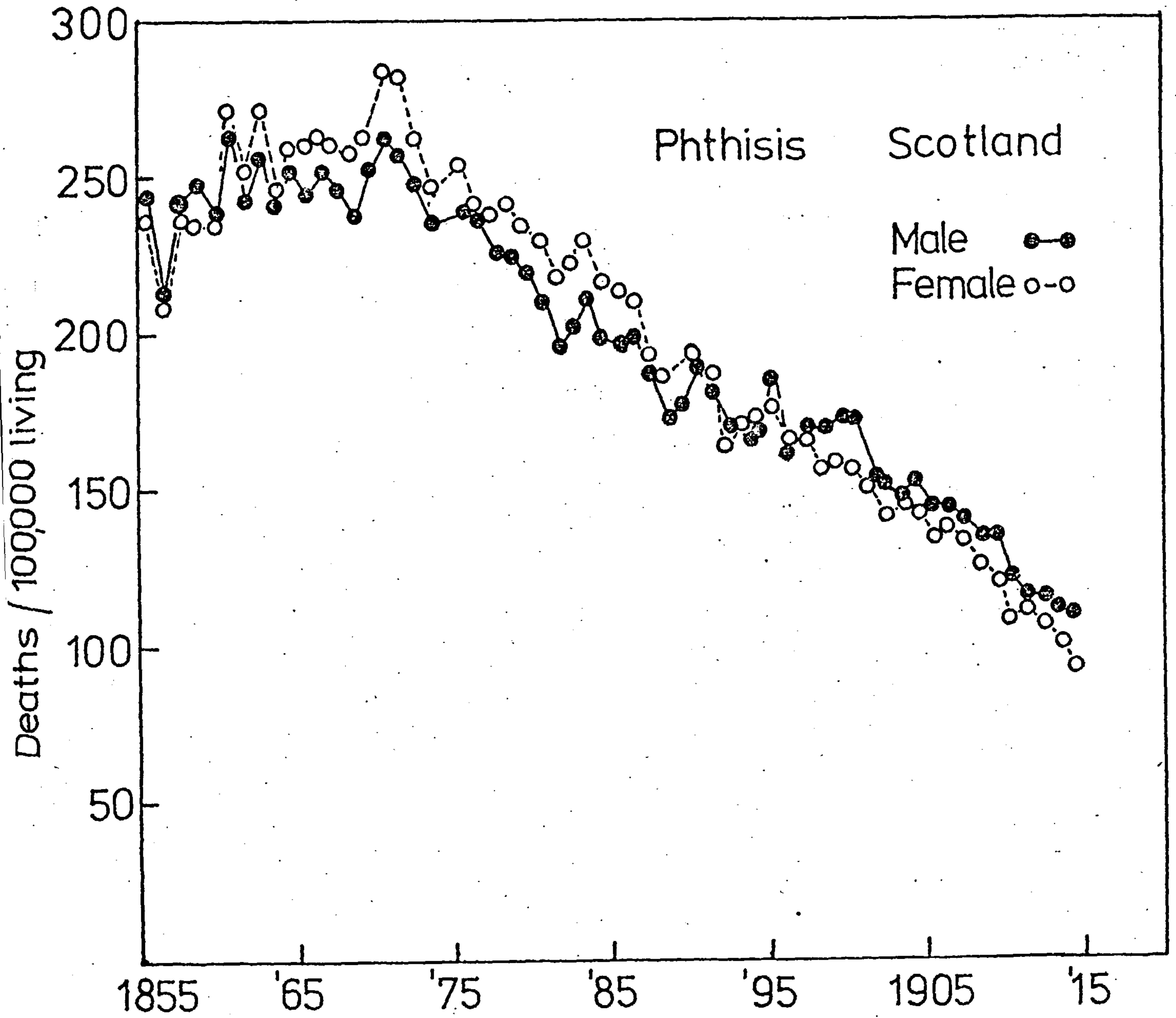
Diphtheria o--o

Croup ●--●

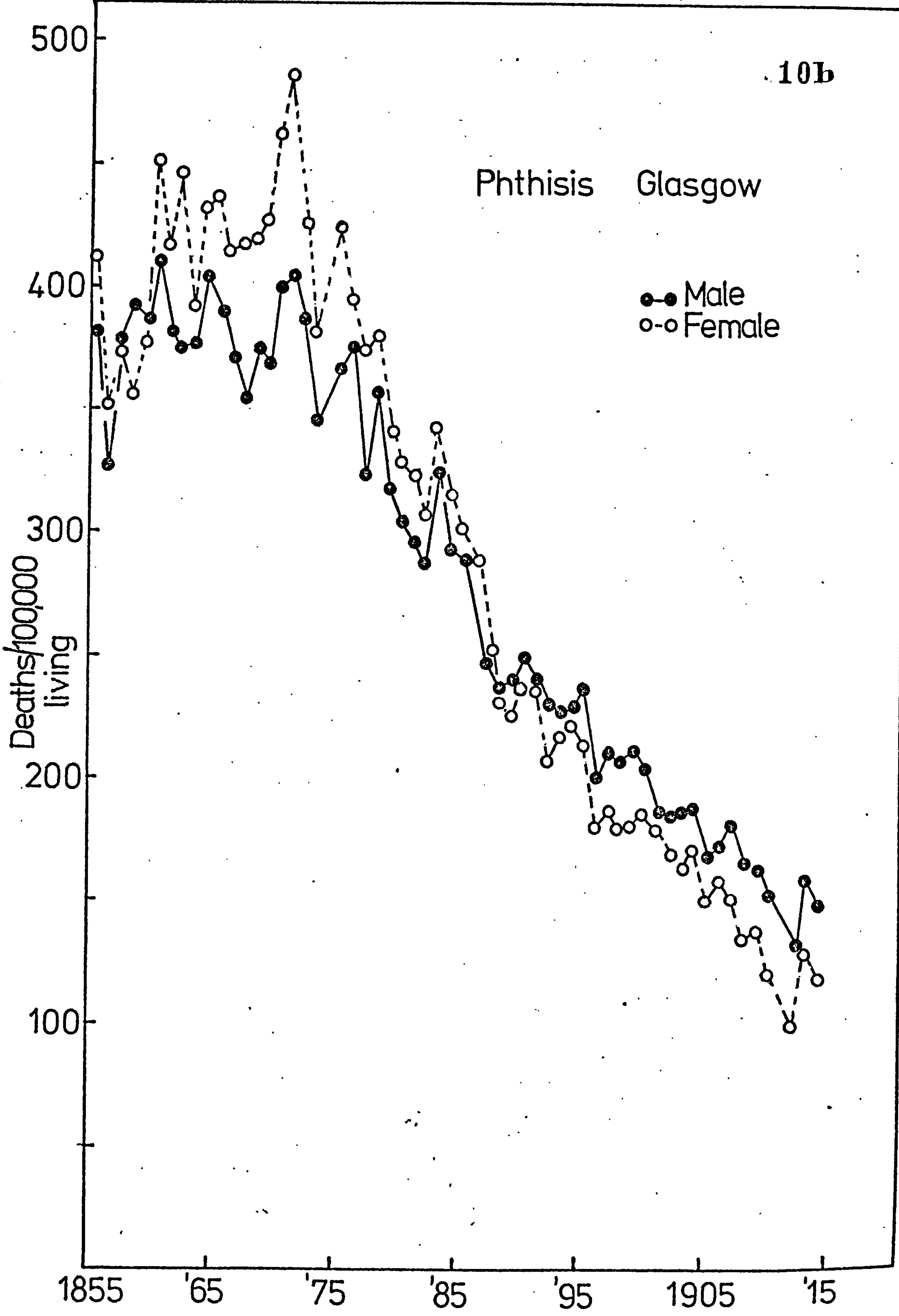
1855 65 75 85 95 1905 15







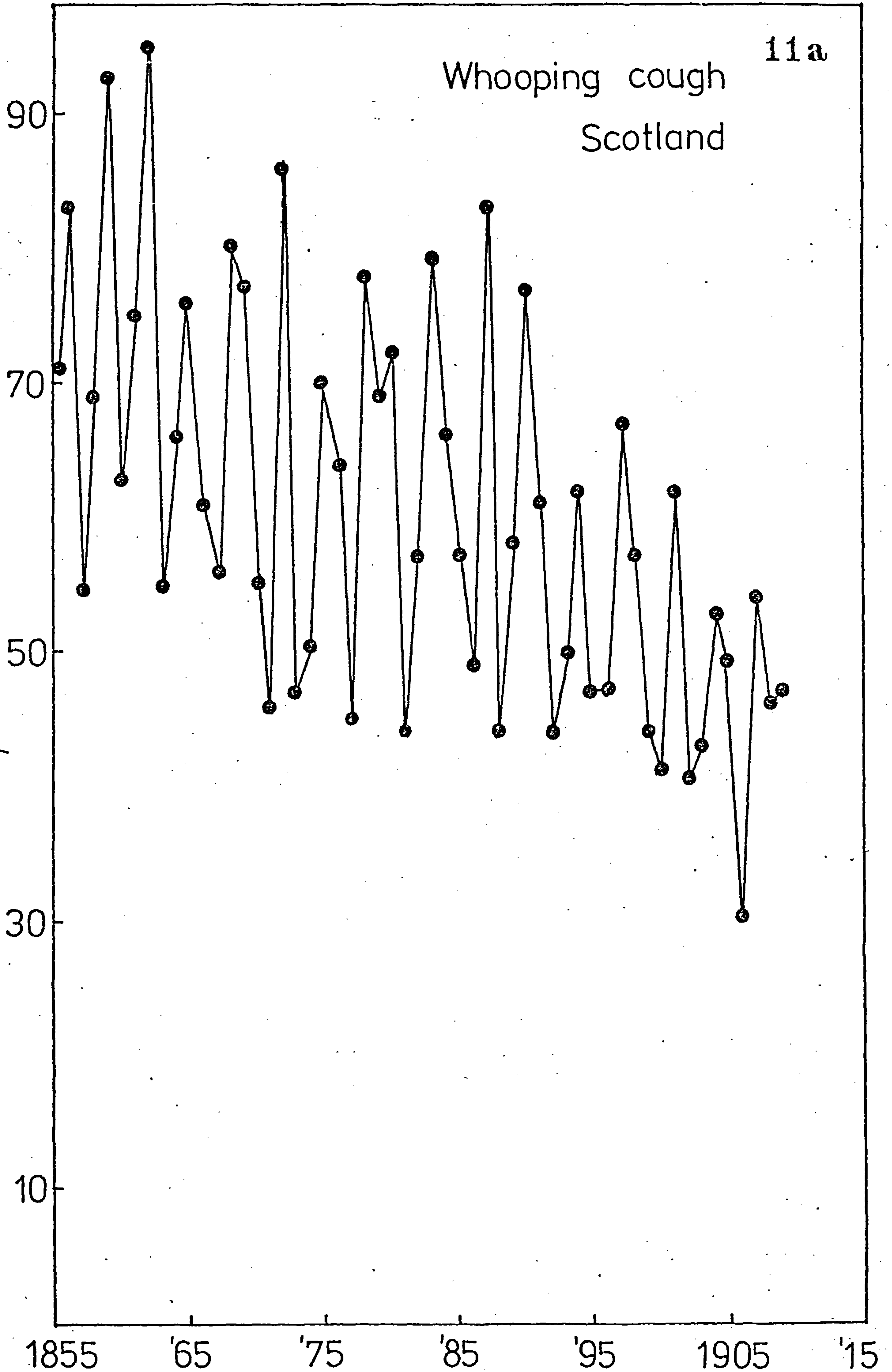
Phthisis Glasgow



11a

Whooping cough
Scotland

Deaths / 100,000 living



11b

Whooping cough
Glasgow Females

Deaths / 100,000 living

200

150

100

50

1855 '60

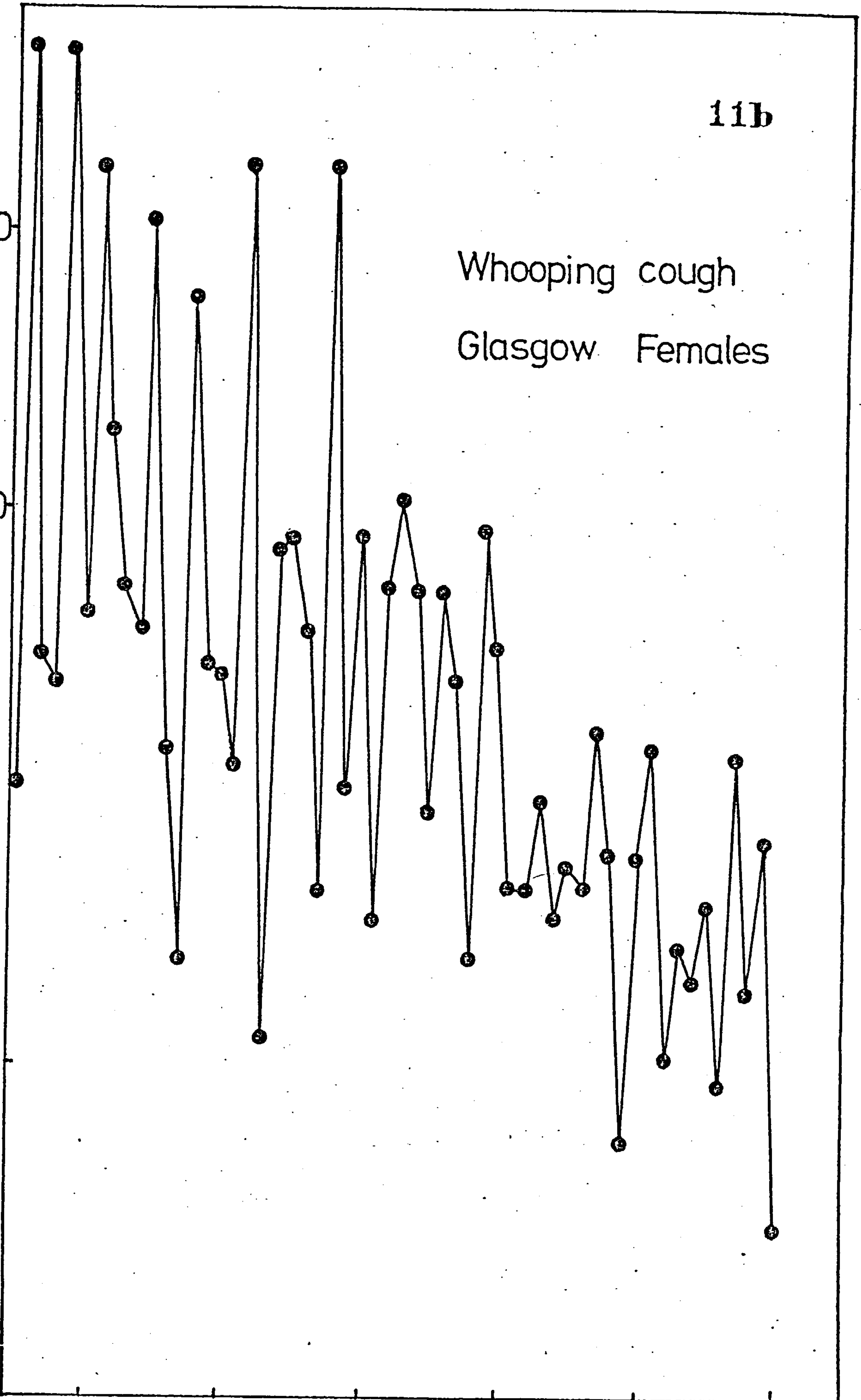
'70

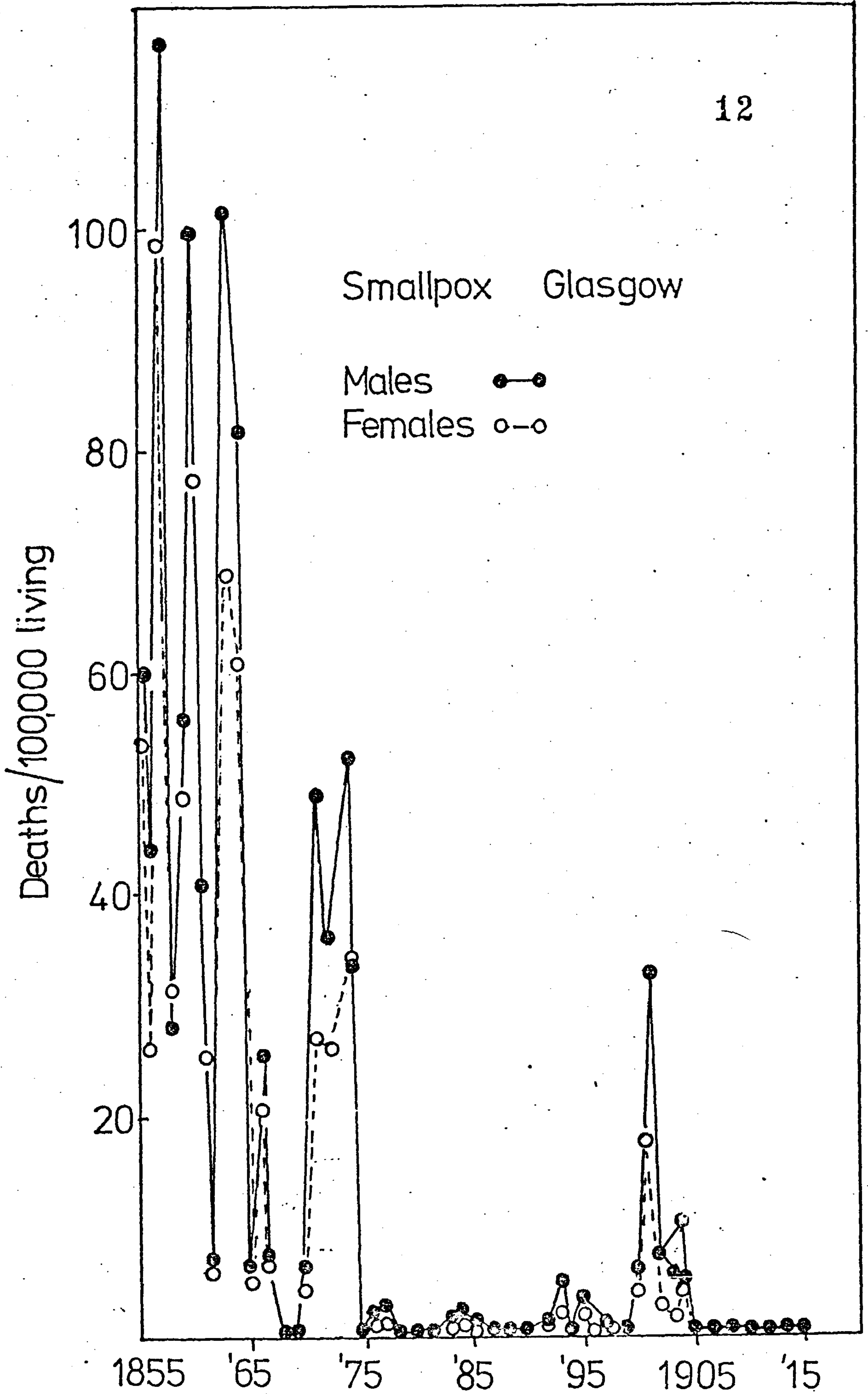
'80

'90

1900

'10





13 a

Measles
Scotland

Deaths/100,000 living

90

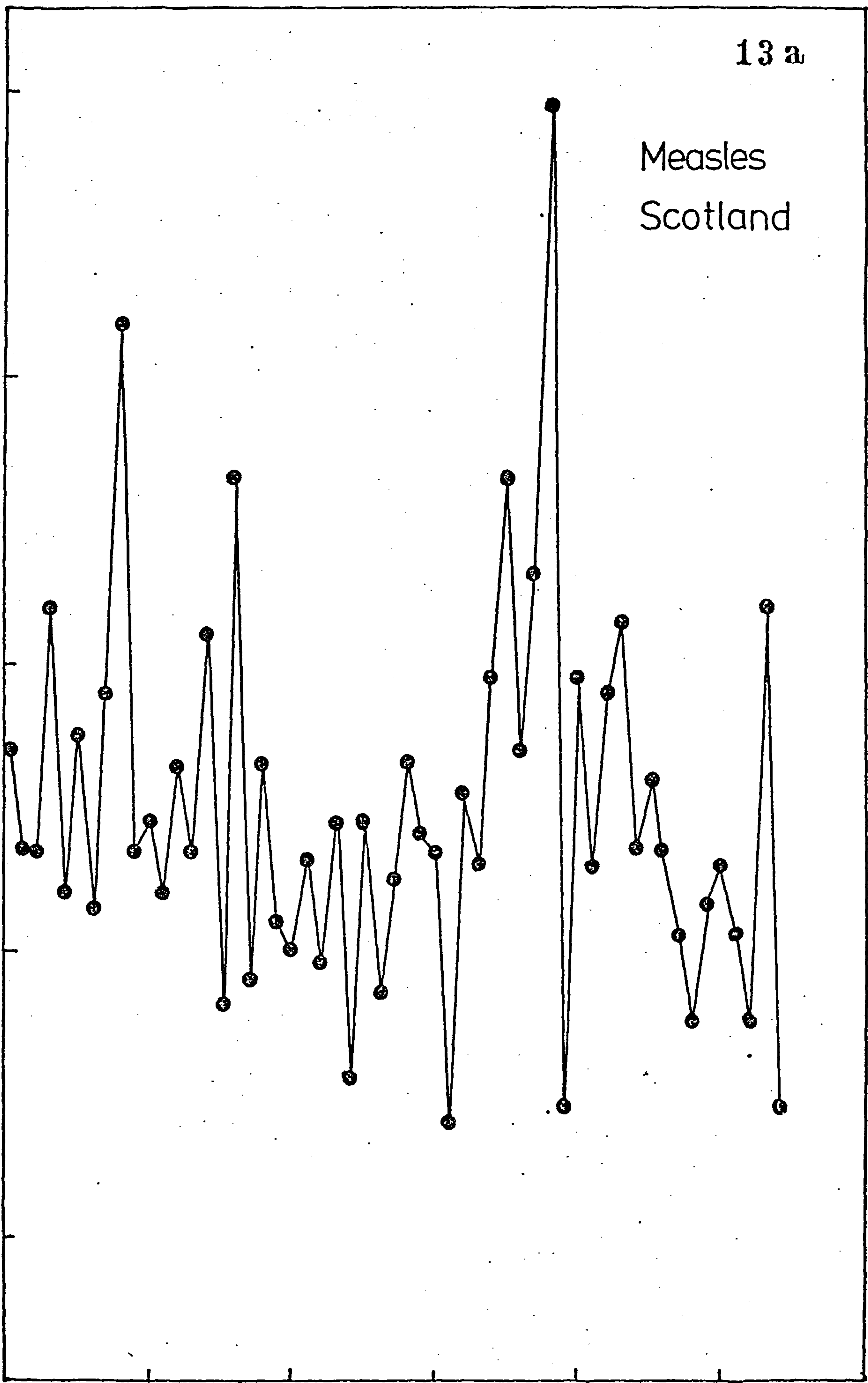
70

50

30

10

1855 '65 '75 '85 '95 1905 '15



13b

Measles
Glasgow Males

Deaths/100,000 living

200

150

100

50

1855

'65

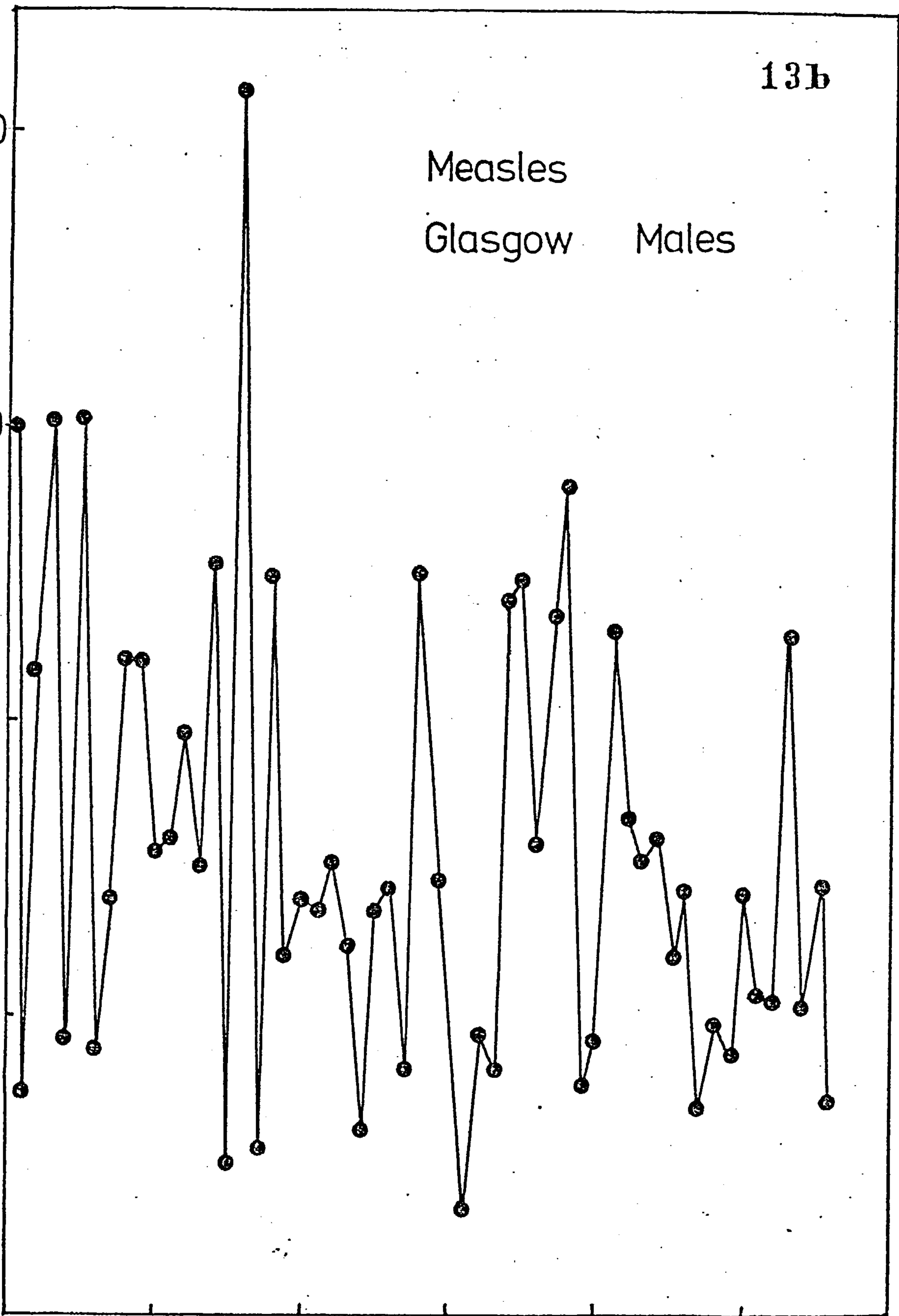
'75

'85

'95

1905

'15



4. The Public Health Administration

As Glasgow developed as an industrial city in the first half of the nineteenth century the health hazards associated with large numbers of people living, often in great poverty, in crowded conditions with totally inadequate sanitary facilities became apparent when cholera and fever broke out. The association between environmental conditions and disease, however, was not widely appreciated; there was no adequate means of regulating physical conditions in towns and such legislation as there was in the early part of the century tended to deal with health hazards only when they became intolerable, not before (1).

The early statutory powers dealing with sanitary and public health matters in nineteenth century Glasgow were contained in local, short term, Police Acts and these developed and were administered as part of the general policing of the city. The first Glasgow Police Act was passed in 1800 and was in force for seven years (2). It contained powers "for paving, lighting and cleansing the streets, for regulating the police and appointing officers and watchmen ..." (3). A second Police Act was passed in 1807 which amended and continued parts of the earlier Act and provided for the better cleansing, paving, and lighting of the streets and for the maintenance of the police for a further fourteen years (4); a third Act in 1821 extended the Police Act for a further fourteen years (5); in 1830 a fourth Act extended the jurisdiction of the magistrates of Glasgow over the lands of Blythswood and adjacent places (6) and a fifth Act in 1837 continued the Police Acts for a further five years and transferred the management of the statute

1. A.K. Chalmers, The Health of Glasgow, 1818-1925 (Glasgow, 1930), p.10.
2. 39 & 40 Geo.III, c.88.
3. J. Lindsay, Review of Municipal Government in Glasgow (Glasgow, 1909), p.9.
4. 47 Geo.III, c.29.
5. 1 & 2 Geo.IV, c.48.
6. 11 Geo. IV, c.42.

labour conversion money, hitherto vested in trustees, to the Board of the General Commissioners of Police (1).

These Police Acts were not administered by the Town Council of Glasgow, which was a closed, unrepresentative body, for under the first Police Act a Police Board with the power to impose rates had been established. It was made up of twenty-four Commissioners elected by the rate payers of the city's twenty-four wards as well as the Lord Provost, magistrates, Dean of Guild, and the Deacon Convenor. Later Police Acts extended and elaborated the powers of the Police Board (2). The sixth Police Act of 1843 contained powers continuing the police and management of statute labour (3) and it was followed three years later in 1846 by the important seventh Police Act which extended the boundaries of the city to take in the three suburban burghs of Gorbals, Calton, and Anderston and the village and lands of Mile End, thus ending the separate police establishments maintained in these burghs and bringing them within the same administration as the rest of Glasgow (4). Under this Act the Town Council became an elected body with each of the city's wards electing three councillors (5); the Police Commissioners were abolished and a Police and Statute Labour Committee was set up composed of eighteen councillors of the city, the Lord Provost, eight Bailies, the Dean of Guild (elected by the Merchants' House) and the Deacon Convenor (elected by the Trades House (6)).

1. 7 Will.IV, c.48, and see Lindsay (1909), op.cit, p.17-18. The Statute Labour Trust had maintained the roads in Glasgow, see J. Bell & J. Paton, Glasgow, Its Municipal Organisation and Administration (Glasgow, 1896), p.128.
2. *ibid.* pp.113-4.
3. 6 & 7 Vict. c.99.
4. 9 & 10 Vict. c.289.
5. J.D. Marwick, The Water Supply of the City (Glasgow, 1901), p.117.
6. *ibid.*

In 1862 the Police Committee was reconstituted by the Police Act of that year as the Board of Police ⁽¹⁾ which functioned until it was abolished by an Act of 1877 when the municipal and police administration of the city was invested in the magistrates and council ⁽²⁾; the Town Council became the Commissioners of Police ⁽³⁾. Until the Glasgow Corporation and Police Act of 1895 ⁽⁴⁾, however, the Town Council and the police authority continued to be distinct and separate with separate staff, accounts, revenue etc. ⁽⁵⁾. It was only from 1895 that police business was dealt with at ordinary meetings of the Town Council.

Until mid-century, therefore, the control of sanitary matters in Glasgow was a police matter, there was no special committee concerned with public health, and the powers of the police in this matter were limited and totally inadequate, as contemporary observers testify. Even such limited objectives of the Police Act as keeping the streets clean were not achieved. J.C. Symons, one of the assistant handloom weaving commissioners described his impressions of the Glasgow slums, "... I did

not believe, until I visited the wynds of Glasgow, that so large an amount of filth, crime, misery and disease existed in one spot in any civilised country. The wynds consist of long lanes out of these open "closes", which are courts about 15 or 20 feet square, round which the houses, mostly of three stories high, are built; the centre of the court is the dunghill ..."

probably the most lucrative part of the estate and hence difficult to have removed ⁽⁶⁾. The inadequacy of the powers contained in the Police

1. 25 & 26 Vict. c.204.
2. 40 & 41 Vict. c.128 Glasgow Police Improvement (Scotland) Act, 1862; Order Confirmation Act, 1877.
3. Bell & Paton op.cit. p.115.
4. 58 & 59 Vict. c.143.
5. Bell & Paton, op.cit.
6. Quoted in Report on the Sanitary Condition of the Labouring Population of Scotland (P.P. 1842, XXVIII), p.71.

Acts to control public health hazards was evident, as Charles Baird pointed out in 1842, "to anyone acquainted with the Police Acts, and who takes even a glance at the districts or rather the crowded, filthy, and unwholesome lanes, wynds, and closes in which the poor reside" (1). Although cleansing and street cleaning had been the responsibility of the Chief Constable since 1800 and the 1843 Police Act had given the Police Commissioners statutory powers to deal with public cleansing, the local population were still allowed to accumulate sewage in ashpits to sell to local farmers (2). Only with the Police Act of 1862 was all such refuse vested in the Police Board and a contractor paid from the rates to collect and dispose of the contents of ashpits. Obviously it took time to get the powers necessary to override the opposition of those with vested interests in such things as dunghills.

Charles Baird had suggested in 1842 that a Sanitary Commission or Board of Health should be set up, "with power to name a medical or other officer, inspectors or inspector, clerks and servants, and to adopt and carry into effect all measures necessary, salutary, or prudent, for preventing and removing nuisances or other things injuriously affecting the public health",

for preventing infectious diseases and promoting "the health, cleanliness, and comfort of the inhabitants of Glasgow and suburbs" (3). It was, however, to be twenty years before a medical officer for Glasgow was appointed and even then there was strenuous opposition to the expense this entailed (4).

1. Rep. San. Cond..... (P.P. 1842, XXVIII), p.71.
2. Municipal Glasgow: Its Evolution and Enterprises, anon. (Glasgow, 1914), p.149.
3. Rep. San. Cond..... p.75.
4. See below, p. 69.

In the mid-1840's, therefore, Glasgow took over the administration of its immediate suburbs under an elected Town Council and it was the late 1850's before any real attempt was made to set up a permanent form of public health administration in the city. Until this happened attempts to deal with Glasgow's sanitary problems were generally unsuccessful. At least in part this was due to the lack of administrative machinery to enforce the sanitary provisions that successive Police Acts contained (1). There was no administrative body to ensure that privies were emptied and did not adversely effect the health of the inhabitants, to register lodging houses, to report epidemic diseases, or to carry out disinfection. Epidemics were dealt with by ad hoc Fever Committees and Boards of Health (2). Even the Nuisance Removal Acts were intended to remove, not to prevent nuisances (3). It was only after national, Scottish, legislation was passed in the 1850's and '60's that a more comprehensive approach to public health matters could be made. In England the Public Health Act of 1848 had enabled local Boards of Health to be established (4). But as Best has pointed out Scottish public health legislation lagged behind that of England (5). It was the 1860's before Scotland attained the public health legislation that England had had in 1848 and the 1890's before Scottish laws became

1. Particularly the powers in the 1843 Act, see Bell & Paton, op.cit. pp.184-5.
2. On Boards of Health, see chapters 5 & 7 on the voluntary and infectious disease hospitals. In the cholera epidemic of 1831 a central Board of Health, responsible to the Privy Council, was set up by royal proclamation in London; J.H.F. Brotherston, Observations on the Early Public Health Movement in Scotland (1952), p.93. Later that year the Privy Council recommended that towns should set up local Boards of Health to deal with the epidemic and one was duly set up in Glasgow which organised temporary cholera hospitals, disinfection etc. see N. Longmate, King Cholera (1966), pp.8-9 & 57; similar measures were taken in later cholera epidemics but these efforts were confined to the duration of the epidemic.
3. Chalmers, op.cit.p.10. These Acts contained powers to deal with epidemics on orders of the Privy Council, Brotherston, op.cit.p.93.
4. 11 & 12 Vict.c.63, and see R. Lambert, Sir John Simon, 1816-1904, and English Social Administration (1963), p.68.
5. G.F.A. Best "Another part of the island, some Scottish perspectives", in Dyos & Wolff, op.cit.p.393. This was probably a result of the small amount of Parliamentary time that was devoted to Scottish domestic matters.

comparable. The Scottish equivalent of the 1848 Public Health Act were Lindsay's Burgh Police Act of 1862 and the Public Health (Scotland) Act of 1867 ⁽¹⁾. The 1867 Act established a permanent government policy of intervention in public health matters, not merely intervention at times of emergencies like epidemics ⁽²⁾. From this time the Scottish central poor law authority, the Board of Supervision, became the central sanitary authority as well. Its three full-time inspectors combined their poor law with their public health duties. There were, however, no medical inspectors, only a part-time medical officer. The great Scottish cities continued to rely heavily on their own Police Acts to promote sanitary and public health improvements.

The opportunity to reform the administration of public health in Glasgow came in 1857 when a special Committee of Nuisance was set up by the Town Council under powers conferred by the Nuisance Removal Act of the previous year ⁽³⁾. This committee was chaired by John Ure the miller who became the leading advocate of reform of the sanitary condition of Glasgow ⁽⁴⁾. Ure pointed out to the Board of Police the appalling state of the city and emphasized that there was no administrative machinery to carry out those provisions of the Nuisance Removal (Scotland) Act with which the Board was charged. He investigated the matter and submitted a scheme of suggested improvements, proposing that a special department,

1. Best, op.cit.

2. Brotherston, op.cit. p.92.

3. 19 & 20 Vict. c.103.

4. John Ure, Lord Provost 1880-3, was chairman of the Sanitary Committee for 25 years. He built the Crown Mills in Washington Street and a mansion, Cairndhu, in Helensburgh, and was the father of Alexander Ure, Baron Strathclyde, sometime Solicitor General, Lord Advocate and Lord Justice General.

staffed by sanitary inspectors, should be set up to control "nuisances" (i.e. the conditions of buildings, streets, etc. that caused discomfort and annoyance and endangered health) ⁽¹⁾. These suggestions were remitted to a special committee of the Board of Police which appointed a deputation (consisting of Ure, the Chief Constable, the Master of Works, and other councillors) to visit large towns in England, Ireland and Scotland to discover how they dealt with sanitary matters. This delegation duly reported and its recommendations on measures to deal with nuisances, overcrowding, infectious diseases etc. were enshrined in the Glasgow Police Act of 1862 ⁽²⁾. This Act introduced (amongst other items) the system of "ticketing" small houses to control overcrowding ⁽³⁾. As the delegation had recommended, nuisance inspectors and one or more medical officers, "such as existed in most English towns of importance" ⁽⁴⁾ were appointed and after the Act was passed a special Sanitary Committee headed by John Ure was set up ⁽⁵⁾.

The chief medical officer had the formidable task of identifying public health hazards in the city and advising on the sanitary measures required for their mitigation in order to prevent outbreaks of disease. He had also to report on the prevalence of infectious disease in the city and the action required to stem epidemics. The medical officer, Ure suggested, had to be "a Physician of enlarged view in Sanitary Science with knowledge of infectious disease, a man of acknowledged reputation" whose opinion commanded authority ⁽⁶⁾. He must not be a

1. G.A. Gibson, Life of Sir William Tennant Gairdner (Glasgow, 1912), p.91.
2. 25 & 26 Vict. c.204.
3. See below, pp.325-8.
4. G.C.A. DTC 14 2 2, p.4. Statement of Mr. Ure for the information of the Board of Police on the Sanitary Scheme and the Duties of Medical Officers of Health, Feb. 1865.
5. Gibson, op.cit. p.93.
6. G.C.A. DTC 14 2 2, op.cit. p.6, and see North British Daily Mail Nov. 18 1862 and Dec. 30 1862.

local medical practitioner so that "in the discharge of public duty he may be independent of, and unbiased by, local or personal considerations" (1). The Board could either appoint a full-time medical officer or an eminent part-time physician helped by five district assistants. Ure favoured the latter course, probably because he had already met the man he regarded as the ideal candidate. This was W.T. Gairdner, the professor of medicine at Glasgow University (he had been favourably impressed by the "Addresses in Public Health" that Gairdner had given in Glasgow) (2). The Board agreed with Ure and Gairdner was appointed as part-time medical officer of Glasgow (3). The five Police Surgeons were appointed as part-time District Medical Officers and one sanitary officer was engaged. Two shops in College Street were equipped as a sanitary office and in the following year three men were appointed from the police force for "Sanitary Duty" (4). This was the complement of the sanitary staff of Glasgow for the five years in which the 1862 Police Act was in force. Thereafter the rather imprecise and permissive powers of the 1862 Act in relation to the appointment of sanitary officials were strengthened by the 1866 Police Act which made the appointment of a chief sanitary officer and staff mandatory (5). The Public Health (Scotland) Act, 1867 provided a permanent statutory basis for the public health administration of Glasgow rather than the short term Police Acts.

1. DTC 14 2 2, op.cit.
2. Gibson, op.cit. p.94.
3. Few Glasgow doctors could have met the rigorous qualifications demanded of the new medical officer. A local doctor complained of "the farce of the Sanitary Committee asking for power to look out for a suitable statutory medical officer, when it was already notorious that they had fixed on a gentleman for that office" North British Daily Mail, Jan. 6 1863.
4. G.C.A. DTC 14 2 2 Report by the M.O.H. to the Board of Police, April and July 1863, p.4 & Russell (1905) op.cit. p.21.
5. Russell (1905), op.cit. p.23.

The new medical officer of health was confronted by a growing epidemic of typhus fever and it was to this that the district medical officers directed much of their attention, visiting fever cases and issuing instructions to the Inspector of Cleansing for the disinfection and cleaning of infected houses. The non-medical inspectors were given lists of fever cases by the Infirmary and the parochial inspectors and surgeons which they traced for the medical officers. Smallpox cases were also followed up and the Inspector of Epidemic Diseases at the central office coordinated the work. At first there was nowhere for washing and disinfecting the clothing and bed linen of fever cases and so in September 1864 a municipal disinfecting washing-house was opened in College Street (1).

The sort of duties undertaken by the Sanitary Department in 1865 are demonstrated by examining the daily work of one of the district medical officers, Dr. Dunlop the District M.O. of the Southern District on the south bank of the Clyde (2). He was assisted in his work by an inspector. Each day he would receive information on the extent of fever in his district; the parochial M.O.'s of Govan and Gorbals sent details of the fever and smallpox localities in the parishes, the Royal Infirmary sent information on the fever cases from the district admitted to the hospital on the previous day, the local Registrars sent details of the cases of fatal disease occurring each week, and local medical practitioners sent lists of convalescent patients whose homes required whitewashing or fumigation. In the morning the inspector would be given details of all these cases; these he visited and made a note of the conditions of the

1. Russell (1905), op.cit., p.21.

2. Dr. James Dunlop, later Professor Dunlop, was the brother of Sir Nathaniel Dunlop, Lord Provost of Glasgow (Gibson, op.cit. p.94).

infected houses, the number of inmates and lodgers, the state of neighbouring houses, courts, dung-pits, and the water supply and drainage. At six p.m. he returned to Dr. Dunlop and presented his day book which contained a report of his day's observations. Dunlop would order the Cleansing Department to carry out fumigation and whitewashing where required or that clothing be taken to the City Disinfecting Station. When overcrowding in ticketed houses was reported Mr. Watson the Night Inspector of Police was informed and he would arrange to visit; miscreants would appear before the magistrates (1). Dunlop also visited cases of infectious disease that had not been removed to hospital. He would, if necessary, contact the parochial authorities to get medical care for the destitute. A District M.O. like Dr. Dunlop reported weekly on fever and smallpox cases to Dr. Gairdner and wrote a report each fortnight on the general sanitary condition of his district. Gairdner, in turn, submitted a quarterly Report on the Health of the City to the Board of Police (2).

In 1863 Gairdner began to use Section 387, the so-called "ticketing" clause, of the 1862 Police Act in an attempt to control overcrowding in two notorious, fever-ridden tenements in Argyle Street and Drygate Street. This clause enabled the M.O. "to ticket such houses or rooms as may appear most urgently to require police supervision in respect of overcrowding" (3). In January 1864 he was able to report that the ticketing of the two tenements had resulted in a decline in

1. For a detailed discussion of ticketing see below, pp. 325-8.
2. G.C.A. DTC 14 2 2, Statement of Mr. Ure, pp.10-16. When cholera threatened in 1866 Gairdner organised volunteers from church congregations to visit all the houses in the city to advise on the preventive measures that should be taken (Glasgow Weekly Herald, Sept. 1 & 29 1866). But this was only a temporary emergency measure during the cholera threat.
3. G.C.A. 14 2 2, Report of the M.O. for the City of Glasgow to the Board of Police, October 1863, p.15.

overcrowding and a reduction of fever and henceforth the ticketing of small houses was increasingly used to control overcrowding (1).

There was vigorous opposition to these early attempts to deal with Glasgow's public health problems. In 1869 the Glasgow Medical Examiner complained that despite the £5,000 that was being spent annually by the Sanitary Department the death rate was not falling (2). The problem, it argued, was not one caused by nuisances and overcrowding but by personal behaviour. The high child mortality was caused by ignorance and moral and physical degradation and the high mortality rate of adults by "the other exitants to bad health and disease, in shape of semi-starvation of many, in individual excesses of still more, in hidden depravity of thousands, and in accidents and accidental exposure of a very great many".

Thus mortality rates were "but an index of our individual and collective conduct". The sooner the "so-called sanitary office is closed the better, both in respect to our purse, our expectations, and our peace of mind, for it is nothing but a specious pretension. All we require is even a still better scavenger system of the long closes and courts" (3).

A few months later the Examiner appealed to the city magistrates to "stick to good brick and lime sewers, as combined with our excellent common scavenger cleansing; and stop the extravagant and useless so-called sanitary system" (4).

Despite this opposition the Sanitary Department grew and so did the scope of its work. Opponents of the department argued that many of

1. G.C.A. DTC 14 2 2, Report of the M.O.H. of the City of Glasgow to the Board of Police, Jan. 1864, p.45.
2. Glasgow Medical Examiner I (1869) 3.
3. *ibid.* 4-5.
4. *ibid.* 30.

the duties of the sanitary staff could be performed by the police; but Dr. Gairdner believed that sanitary work required a completely different approach ⁽¹⁾. Increasingly as the work of the department became more complicated more specialist staff were engaged. In 1870 the sanitary inspecting staff acting directly under the part-time medical staff numbered nine. The scope of sanitary work at this time is indicated by the list of prosecutions made under the Police Act in the three months ending January 31 1870; 329 prosecutions were made for having overcrowded dwellings, 319 for dirty jawboxes (the communal sinks at the stairheads), 503 for having dirty stairs, 20 for contravening lodging-house regulations, 96 for throwing down filth, two for carrying on a business so as to be a nuisance to the neighbourhood, and one for keeping a pig without a licence ⁽²⁾.

Early in 1870 steps were taken to create a more effective sanitary department by appointing an Inspector of Nuisances. Hitherto the duties of inspector of nuisances under the Police Act had been carried out by the Chief Constable and the Master of Works ⁽³⁾. Now K.M. McLeod was appointed as Inspector of Nuisances and Common Lodging-houses under the Police Act and as Sanitary Inspector under the Public Health (Scotland) Act ⁽⁴⁾. He was to cooperate with the medical officers in matters relating to infectious disease and public health ⁽⁵⁾. By this time the Board of Police had undertaken to do all the street cleaning in the city as well as removing and disposing of

1. Glasgow Weekly Herald, March 23 1872.
2. G.C.A. ... El 20 1, Minutes Committee of Health, 21 Feb. 1870, p.20.
3. G.C.A. ... El 6A 9, Minutes of the Magistrates and Council of Glasgow, 30 Sept. 1885, p.3013.
4. At a salary of £300 p.a. G.C.A. El 20 1, p.2.
5. All notices under the Public Health Act were issued under McLeod's name but the statutory officer under the Police Act was the Master of Works. McLeod was to issue notices under the Police Act in the name of the Master of Works while the Master of Works supervised the structural work of the department. G.C.A. DTC 14 2 1, Minute of the Health Committee on 30 Nov. 1871, in regard to Sanitary Arrangements.

domestic refuse and a Cleansing Department under an Inspector of Cleansing had been set up in 1868 (1).

At the end of February 1870 the Committee of Health considered and approved a report of a sub-committee recommending that the inspecting staff of the sanitary department should be expanded so that the Police Act and Public Health Act could be effectively enforced. The city was to be divided into five districts each with its own staff of one sub-inspector of nuisances, two lodging-house inspectors, one or two epidemic inspectors, and one or two nuisance inspectors. The whole staff, including the Chief Inspector now numbered 36 plus clerks and the medical officers (2).

At this stage more specialist staff were engaged. For the position of sub-inspectors of nuisances experienced men with a knowledge of the structure of buildings were employed, men who were able to detect defects in house ventilation, lighting, w.c., privy, and ashpit accommodation and to suggest remedies. The men best suited for this kind of work were "married Builders who have acted as Master,

Foremen, Inspectors of Works with abilities to sketch and describe any alterations or improvements sufficiently plain to make them be understood, and having an education fitting them to keep neat and careful records of all complaints and to guide and instruct the officers under them" (3).

The epidemic inspectors (originally recruited from policemen), lodging-house, and nuisance inspectors were to be "active, intelligent and

1. Bell & Paton, op.cit. p.166. By 1896 the Cleansing Dept. employed 1,089 men.

2. G.C.A. El 20 1, pp.35-7.

3. G.C.A. El 20 1, p.37, sub-inspectors of nuisances were to be paid £100 p.a.

painstaking with a knowledge of sanitary work and a firm and agreeable manner and able to write Reports carefully" (1). In addition to these inspectors five women were employed, one in each district, to make house to house visits and "instruct and direct the inmates in regard to Sanitary matters" (2).

As all the medical officers were only part-time McLeod was head of the Sanitary Department, acting on the medical advice of Dr. Gairdner and the district medical officers. The district inspectors ran their respective districts under the general superintendance of the chief sanitary inspector and they were in daily contact with their local district M.O. The nuisance, lodging-house, and epidemic inspectors were under the control of the district inspectors.

A nuisance inspector had to be familiar with the provisions of the Police and Public Health (Scotland) Act concerning nuisances. He had to assess the sanitary condition "of each lane, court, close, stair, privy, and ashpit in the portion of the District to which he is appointed, more especially as regards cleanliness, ventilation, sewage, paving, and the prompt removal of all filth and offensive matter" (3).

He had to pay special attention to, "The enforcement of proper and adequate privy accommodation for the males, females and children" and he would attempt to persuade owners and factors to remedy sanitary defects but failing that, he would report them to the District Inspector who would initiate legal action (4). Each week he followed up the list of deaths of children under five which had been drawn up by the local

1. Inspectors were paid 30/- a week plus uniform.
2. G.C.A. E1 20 1, p.37.
3. City of Glasgow, Sanitary Dept., Instructions for the Medical, Inspecting and Cleansing Officers (Glasgow, 1870), p.15.
4. *ibid.*

Registrar. He inspected each house where such a death occurred and noted down any sanitary defects and any suggestions he could make which might prevent such an event recurring (1).

The lodging-house inspector had to enforce the legislation relating to lodging-houses of the city; all houses with lodgers in Glasgow were regulated in some way. Common lodging-houses were governed by the Glasgow Police Acts (2) and houses let in lodgings by the Public Health (Scotland) Act (3). Such houses were registered and inspected and regulated as to the number of lodgers allowed and regulations were made concerning ventilation (windows had to be opened at specified times each day), and sanitation and cleanliness (common stairs had to be swept daily and washed twice weekly etc.) (4). The lodging-house inspector also inspected ticketed houses (5).

Epidemic inspectors were responsible for seeking out cases of infectious disease and arranging for the removal of infectious patients to hospital when this was ordered by a M.O. They also arranged for the disinfection and fumigation of infected houses and clothing (6). The Sanitary Department kept a daily return of infectious disease cases so that fluctuations in incidence were obvious. Each year a register of the fever localities in each district ^{was} made up in which the fever

1. K.M. McLeod, "The City sanitary organisation: its aids and obstacles" read before the Social and Sanitary Section of the Glasgow Philosophical Society (Glasgow, 1872), p.4.
2. The Acts of 1862 and '66 gave the M.O.'s powers to order medical treatment for infectious lodgers in common lodging-houses and, if necessary, move them to hospital. In addition there were powers to regulate cleanliness etc.
3. see T.G. Nasmyth, Manual of Public Health and Sanitary Science (Edinburgh, 1890), pp.228-9.
4. McLeod, op.cit.
5. See below, pp.325-8.
6. Sanitary inspectors were provided with uniform and subject to strict conditions of work; instant dismissal was the penalty for intemperance, neglect of duty, or insubordination. They worked from 9 a.m. to 7 p.m. during the week and from 9 until 2 p.m. on Saturdays. In addition the sanitary office was staffed on a rota basis on Saturday afternoon and Sunday, Sanitary Dept. (1870), op.cit.

black spots were arranged alphabetically so that they were easily identifiable ⁽¹⁾. A Pathological Register was also drawn up by the medical officer of health showing the major causes of death in each district ⁽²⁾.

By the first decade of the twentieth century the responsibilities of the Sanitary Department had grown as legislation related to the control of environmental and public health conditions had developed. By now the department had to deal not only with the sanitary provisions of the Glasgow Police Acts and the Public Health (Scotland) Acts, but also, amongst others, with the provisions of the Cattle-sheds in Burgh Act, 1866, and the Dairies, Cowsheds and Milkshops Orders 1885-99 which regulated byres and cowsheds within the city, as well as dairies and the sale of milk ⁽³⁾, the Glasgow Police (Amendment) Act, 1890, which contained powers to regulate the sale of meat ⁽⁴⁾; the Sale of Food and Drugs Act, 1875 to 1907, which were concerned with preventing the sale of adulterated food; the Glasgow Building Regulations Acts of 1892 and 1900 ⁽⁵⁾; the Infectious Disease Notification Act 1899 ⁽⁶⁾; the Factory and Workshops Acts, 1878 to 1901, which regulated sanitary conditions in factories, workshops, bakehouses, and restaurants; and the Notification of Births Act, 1907, which was a measure designed to reduce infant mortality and required that the medical officer of health be notified of each birth within 36 hours ⁽⁷⁾.

In order to carry out the provision of all this legislation an even larger and more specialist sanitary staff was needed. The

1. McLeod, op.cit, p.8.
2. Russell (1886), op.cit. pt.2, p.10.
3. See below, pp.365-8.
4. See below, pp.370.
5. See below, pp.330-2
6. See below, pp.253.
7. See below, Chapter 11, ix.

department had some 36 staff in 1870 and this number had increased to 90 (plus the M.O.H. and the sanitary inspector) in 1886 ⁽¹⁾. There were now five district inspectors, sixteen nuisance inspectors, eight epidemic inspectors, a lodging-house inspector, four night inspectors, five female inspectors, and four food inspectors, plus clerks, smoke-testers (who tested drains), cleaners, disinfectors, white-washers, public lavatory attendants, a vaccinator, and the reception house staff ⁽²⁾. By 1896 the number of special inspectors had increased; besides the seven district inspectors, 22 nuisance inspectors, twelve epidemic inspectors, two lodging-house inspectors, six night inspectors, and six female inspectors, there was also four inspectors of food, three meat inspectors, and one inspector of factories and workshops, 63 in all ⁽³⁾. By 1914 the sanitary department and its associated laboratories employed 401 people; 57 general staff, 245 sanitary inspecting staff, 24 milk and meat inspection staff, 11 working in the bacteriological laboratory (which had been set up in the late 1890's), and 12 in the chemical laboratory; there were also 19 staff concerned with the problem of infant mortality and 33 with tuberculosis ⁽⁴⁾.

In 1872 it had been decided that the position of M.O.H. of Glasgow required the full attention of one man and that there should be just one, full-time medical officer ⁽⁵⁾. Dr. J.B. Russell, then medical officer at the Parliamentary Road and Belvidere Hospitals, was duly appointed at a salary of £600 p.a. and he continued to be Physician and Medical Superintendent of the Police Board's Hospital ⁽⁶⁾.

1. G.C.A. El 6A 12, pp.97-100.

2. *ibid.*

3. Bell & Paton, *op.cit.* pp.191-9, plus clerks etc.

4. Municipal Glasgow, *op.cit.* p.206, and see below pp.379 & Chapter 11, ix.

5. G.C.A. El 20 1, p.308, 15 April 1872.

6. *ibid.* p.346 and see Appendix I.

Dr. Gairdner, though he was offered the position of consulting medical officer, resigned and so did the five part-time officers ⁽¹⁾. After the extension of the city in the 1890's an assistant medical officer, Dr. A.K. Chalmers, was appointed and he succeeded Russell in 1898 ⁽²⁾.

By the first world war sanitary conditions in Glasgow had improved beyond measure. The city now had many miles of new sewers providing a system of main drainage and sewerage treatment at three large new sewerage disposal plants at Dalmarnock, Dalmuir, and Shieldhall ⁽³⁾. The worst of the old slums had been swept away and new streets and parks laid out but the inner industrial districts were grossly overcrowded and Glasgow was still notorious for its decaying slums and the extremely high density of population in these districts. But great improvements had been made in the sanitary condition of the city. Now mechanical sweeping machines were in regular use to keep the streets clean ⁽⁴⁾, a complicated system of refuse reclamation and disposal was in operation ensuring that the back courts of tenements no longer presented the same threat to public health that they had hitherto ⁽⁵⁾, and the large staff of the sanitary department ensured that such threats to public health as infectious diseases, nuisances and overcrowding were promptly dealt with. Thus Glasgow had a strong administration that was able to control the worst environmental hazards that are inevitable in a large industrial city. The city possessed the reputation of being one of the most progressive municipal authorities in the Kingdom. Not only were the public utilities of Glasgow run by the municipality

1. G.C.A., E1720-1, p.355-6.

2. Appendix II.

3. For a more detailed discussion of sanitation, see below, p.356 ff.

4. Municipal Glasgow, op.cit. pp.150-1.

5. ibid. pp.154-60.

(the tramways, gas and electricity supplies, and for a time the telephone service) but there was even a suggestion that the city's milk supply should be municipalized (1).

1. Municipal Glasgow, op.cit., p.3.

5. The Voluntary Hospitals

There had been hospitals for the aged and infirm in Scotland before the Reformation but with the suppression of the religious orders these fell into decline. Thereafter there was little provision for the sick poor although members of the Royal College of Physicians in Edinburgh and the Faculty of Physicians and Surgeons in Glasgow gave advice without charge to the poor in their halls and visited them in their homes ⁽¹⁾. The lack of institutional provision for the sick and of facilities for clinical teaching was very apparent.

The eighteenth century saw the beginnings of an attempt to put this right with the development of voluntary hospitals and dispensaries throughout the country. Between 1700 and 1825, and particularly after the mid-eighteenth century, 154 hospitals and dispensaries were founded in the United Kingdom ⁽²⁾. In Scotland the Edinburgh Royal Infirmary was founded by Royal Charter in 1736, the Aberdeen Infirmary in 1740 ⁽³⁾, the Dumfries and Galloway Infirmary in 1776 ⁽⁴⁾, the Dundee Infirmary in 1793 ⁽⁵⁾ and in subsequent years infirmaries were founded in most large Scottish towns.

The situation in Glasgow mirrored that elsewhere. The Town's Hospital had been built in 1733 primarily as a workhouse but members of the Faculty of Physicians and Surgeons of the city did attend the sick in the hospital without charge ⁽⁶⁾. In 1787, at the instigation of Professor Jardine (the Professor of Logic at the University), a move was made to get an infirmary set up in Glasgow. Alexander Stevenson the Professor of Medicine at Glasgow University was Jardine's principal

1. J. Comrie, History of Scottish Medicine (1932) II, p.449.
2. C. Singer & E.A. Underwood, A Short History of Medicine (1962), p.194.
3. Received a Royal Charter in 1773.
4. Received a Royal Charter in 1807.
5. Comrie, op.cit. pp.449-64.
6. *ibid.* pp.456-7. The Town's Hospital soon proved to be unprofitable as a workhouse; it was supported by an assessment made on the local population, see Regulations of the Town's Hospital of Glasgow (Glasgow, 1841) and R.A. Cage, "The making of the old Scottish Poor Law, Past and Present, 69 (1975), 116. Later the hospital employed a surgeon to attend the sick.

supporter in this venture ⁽¹⁾. In June 1787 a meeting was held to launch the project, Jardine was elected secretary and a committee was appointed to collect subscriptions to the proposed infirmary. Like many of the voluntary hospitals founded in this period and unlike the ancient hospitals of the metropolis the new infirmary relied on contributions and subscriptions for its financial support ⁽²⁾; the new Royal Infirmary had little endowment capital ⁽³⁾. The same is true of the other voluntary hospitals which were founded in Glasgow; the Western Infirmary which was established in 1871, the Victoria Infirmary which was incorporated in 1889, and the Glasgow (later the Royal) Hospital for Sick Children which was founded in 1880.

(1) The Sources

The primary source materials available on the Glasgow voluntary hospitals include the minute books of the hospitals which contain details of the various committees concerned with the finance and management but little information on clinical matters or on conditions in the wards except when there were such emergencies as epidemics ⁽⁴⁾. There is also a very incomplete set of Royal Infirmary Ward Day Books, some of which contain details of patients and their diagnoses, treatment, and progress and several Ward Journals for the 1860's which contain more detailed discussions of treatment. The main primary sources of material about the city's voluntary hospitals are their annual reports published as part of the hospitals' efforts to raise funds. These reports consist chiefly of lists of subscribers and general discussions of the progress of the hospital. But they also include data on the

1. M.S. Buchanan, History of the Glasgow Royal Infirmary (Glasgow, 1832), p.3.
2. J. Woodward, To Do the Sick No Harm (1974), p.12 and see below, pp.91-8.
3. Buchanan, op.cit. p.39.
4. It was not possible to consult the minutes of the Western Infirmary.

total number of patients admitted and discharged each year, the number and sort of operations performed, the length of patient stay, the place of residence of patients, the diagnoses of patients (only in later reports), and the condition of those discharged (whether "cured" or "relieved") and the number of deaths. These latter data have been widely used to assess the significance of voluntary hospital treatment⁽¹⁾. There are, however, considerable problems in using such information, problems which may not have been sufficiently considered by previous students of them.

The classification of patients at the Royal Infirmary, the only Glasgow hospital in existence in the eighteenth century, poses particular problems. From 1795 the Infirmary classifies the patients discharged from the hospital in the year as "cured", "relieved", "with advice", "being irregular", "being improved", "being incurable", "being improper", "remitted", and "died". Patients were classed as "cured", according to Moses Buchanan a surgeon at the Infirmary and author of the History of the Royal Infirmary of Glasgow, when the doctors considered a complete cure had been effected and they would be readmitted if their symptoms recurred within six weeks of discharge from hospital without a further subscriber's line; patients were discharged as "relieved" when treatment led to some relief of symptoms, but they required a further subscriber's line to be readmitted to the Infirmary; patients whose symptoms could not be relieved by further hospital treatment were discharged with medicine and "advice"; those who broke hospital rules were discharged as "irregular" or "improper"; patients who did not wish to continue treatment were discharged by "desire" and those who

1. Woodward, op.cit. p.126 & S. Cherry, "The role of a provincial hospital; the Norfolk and Norwich Hospital, 1771-1880", Population Studies, XXVI (1972).

were inadvertently admitted to medical wards but who were found to have a surgical condition were said to be "remitted" when they were later transferred to the care of a surgeon (1).

In his discussion of the Norfolk and Norwich Hospital, Cherry suggests that the term "cured" probably meant that a patient was fully recovered and the term "relieved" that he was at least partially recovered (2). But the definitions cited by Woodward, which were made by J.C. Steele (a former medical superintendent of the Royal Infirmary) in 1861 probably approach more nearly those given by Buchanan (3). Of the terms "cured" and "well" Steele says "the meaning intended to be conveyed is not an absolute and permanent recovery from disease in all cases" but includes "a large number of cases where a restoration to temporary health is the utmost that can be expected. In fevers and in the greater number of surgical diseases no doubt can exist as to the credibility of the return 'well'" (4).

What this meant in practice at the Royal Infirmary is apparent from the Ward Day Books. Here, for example, there are records of women who had surgery for the removal of breast tumours, often of considerable size and present for many months, who were discharged "cured" (5) and of patients with other tumours who were also discharged "cured" (6). It is extremely unlikely that these patients were "cured" by surgery; they had merely been restored to "temporary health". The term "relieved" was

1. Buchanan, op.cit. p.51.
2. Cherry, op.cit. 296.
3. J.C. Steele was the medical superintendent of the Glasgow Royal Infirmary until his appointment as the first medical superintendent of Guy's Hospital, London, in 1853, see H.C. Cameron, Mr. Guy's Hospital 1726-1948 (1954), p.192.
4. J.C. Steele, "Numerical analysis of the patients treated in Guy's Hospital for the last seven years, from 1854 to 1861", Journal of the Statistical Society, 24 Sept.1861, 376, cited by Woodward, op.cit.p.196.
5. GHB-6/2/1, pp.19 & 79, Royal Infirmary Ward Day Book, 1794.
6. *ibid.* pp. 45 & 62.

used to include "a large, perhaps the greater portion of the patients whose classification might, with equal propriety, have been inserted in the category of incurable cases, were it not for the fact that they had received benefit from their temporary residence, and were discharged in much better health than they were at the date of their admission" (1).

Patients with pulmonary tuberculosis fell into this category.

In the reports of the Royal Infirmary the categories "improper" and "remitted" were dropped in 1834, from 1847 classification was further reduced and patients were discharged "cured", "relieved", "on other grounds", or "died", and after 1878 data are given for two categories only "cured, relieved or on other grounds" and "died". For the years after 1878, therefore, it is possible to calculate only the mortality rate within the hospital, not the rate of patients cured. And even the mortality rate within hospital could be kept down by discharging patients who were relieved temporarily and who died later. The fact that the classification of the condition of patients on discharge from the infirmary was eventually reduced to only two categories indicates that the classifications used earlier were not at all clearly defined. How useful, therefore, such measures as the proportion of patients "cured" or "relieved" are as an indication of the effectiveness of the infirmary is debatable. Perhaps some recent studies have placed too much faith on the reliability of the classification of the condition of patients on discharge and have thus tended to overstate the success of the early voluntary hospitals (2).

1. Steele, op.cit.

2. q.v. Cherry, op.cit. & Woodward op.cit.

The data from the other three Glasgow hospitals are more consistent. The Western Infirmary classifies patients on discharge as "cured", "relieved", "incapable of further benefit", and "died" for the years 1877-9; as "well", "greatly improved", "relieved", "on other grounds", and "died" for the years 1881-9, and from 1891 patients discharged are classified as "well", "greatly improved", "on other grounds" (not likely to be benefited by further residence) and "died" (as at the Royal Infirmary the classification of patients into the first four categories is rather arbitrary). From 1877 it is possible, therefore, to calculate the proportion of Western Infirmary patients who were discharged "well" but there is no comparable data for the Royal Infirmary at this time and neither is there any for the Victoria Infirmary (which gives only the totals of patients treated and the number of deaths). The Hospital for Sick Children classifies the patients discharged as "cured", "improved", "unimproved", and "died" and this classification remains the same throughout the period.

The mortality rate is the only common factor that can be calculated for all three infirmaries in the period under consideration and even here the data may be unreliable. First, apparently until the 1830's at least, patients who were moribund on admission to the Royal Infirmary or who died within twelve hours of admission were not included in the figures for hospital deaths ⁽¹⁾. It is unclear how long this practice continued. The other two infirmaries did not use this procedure; Western Infirmary reports note the number of deaths that occurred within 24 hours of admission and so do the reports of the Victoria and

1. Buchanan, op.cit. p.51. This practice was fairly common, see Woodward, op.cit. p.139.

these deaths are included in the total number of deaths. Second, mortality rates would be artificially low if patients who were expected to die were discharged, and this happened on at least one occasion at the Royal Infirmary. In 1864 the City parochial authorities complained to the Board of Supervision that 32 destitute patients had been discharged from the Infirmary and some 10% of them were moribund and died within days of their admission to the City poorhouse (1). It is not possible to say whether this practice was common at the Infirmary or whether it ceased when the Board of Supervision intervened.

It is also difficult to calculate comparable rates of patients/population because of the way in which patient residence is given in the Infirmary reports. The Royal Infirmary gives the place of residence of patients as "Glasgow", "suburbs", and "elsewhere" but it is not clear whether the area the Infirmary authorities considered to be Glasgow corresponds to the Glasgow of the Registrar General. The Western Infirmary merely gives the place of residence as "Glasgow and suburbs" or "elsewhere" and it is not clear which suburbs are included with Glasgow. The Sick Children's Hospital gives the place of residence of its patients as "Glasgow and district" and "elsewhere", again it is not clear what is meant by "district". The Victoria Infirmary does not give information on the place of patients' residence at all.

The secondary sources of information concerning the voluntary hospitals are the hospital histories. Notable amongst them is Moses Buchanan's History of the Glasgow Royal Infirmary which covers the early years of the nineteenth century. There is, however, no compre-

1. 19th Annual Report of the Board of Supervision (P.P. 1865, XXII) Appendix A, and see Woodward, op.cit. p.140.

hensive work covering the period after the 1830's, the only account being a slight pictorial history ⁽¹⁾. There are recent histories of the Western Infirmary and Royal Hospital for Sick Children and a brief history of the Victoria Infirmary ⁽²⁾. With the exception of Buchanan's early work the hospital histories are primarily concerned with the physical development of the hospitals, with medical personalities and clinical advances rather than with the patients and conditions treated and the effectiveness of their treatment.

(ii) The purpose of the voluntary hospitals

The basic purpose of all Glasgow voluntary hospitals was to provide medical treatment for the sick poor. This seems to have been the sole purpose of the Royal Infirmary as the petition to the King for a charter states:

"that an Infirmary for the relief of persons labouring under poverty and disease, has long been wanted in the city of Glasgow, and in the adjoining counties of Scotland, and is become more necessary at present than at any former period, on account of the prosperous state of the manufactures in Glasgow and its neighbourhood, and the increased population of those classes of manufacturers and labourers of every kind, who are most likely to require charitable assistance. That though the city of Glasgow hath ever paid the greatest attention to the diseased poor, and the Physicians and Surgeons have not only gratuitously given advice and assistance, but on many occasions furnished them with medicines;

1. J. Patrick, A Short History of the Glasgow Royal Infirmary (Glasgow, 1940).
2. L. McQueen & A.B. Kerr, The Western Infirmary 1874-1974 (Glasgow, 1974), E. Robertson, The Yorkhill Story (Glasgow, 1972) and I. Murray, The Victoria Infirmary of Glasgow. A History of A Voluntary Hospital 1890-1948 (Glasgow, 1967).

yet as the number of diseased poor is constantly increasing, they find themselves altogether incapable of giving that relief which their cases require, particularly while the poor and diseased live dispersed in different parts of a large city and its suburbs, and are not under their regular and daily inspection" (1).

From the time the Infirmary opened, however, the two physicians at the hospital were permitted to give clinical lectures and clinical teaching has continued ever since (2). The later voluntary hospitals in the city were committed to provide facilities for clinical teaching from the beginning as is evidenced in the constitution of the Western Infirmary (which was built near the new university buildings at Gilmorehill) which states that the hospital was set up "to extend the general

Hospital accommodation, for the relief of the sick and hurt in the city and neighbourhood of Glasgow, and to provide the means of Clinical instruction in their profession for the Medical and Surgical Practitioners educated at the University or other Medical Schools" (3).

The Victoria Infirmary had similar objectives and also provided some pay beds and dispensaries on the south side of the city "where injured and sick persons may be temporarily attended to until their removal to the said Infirmary" (4). The aims of the Sick Children's Hospital were

1. Buchanan, op.cit. p.57, Appendix A, Charter of the Glasgow Royal Infirmary.
2. J. McNee, "Medicine", in Fortuna Domus (Glasgow, 1952), p.191. Apart from Glasgow University medical school, from 1796 there was Anderson's College Medical School which had 700 students in 1877 (Comrie, op.cit.p.517); between 1830 and '44 there was a medical school in Portland Street, and after 1876 there was the Royal Infirmary Medical School which was incorporated as St. Mungo's College in 1889 and prepared students for the Triple Qualification (Patrick, op.cit.p.27).
3. Disposition by the Principal and Professors of Glasgow University to the Managers of the Western Infirmary Glasgow (Glasgow, 1878), p.17.
4. Constitution of the Victoria Infirmary (Glasgow, 1889), p.40.

even broader, the advancement of medical science in children's diseases and the spread of information about the management of sick children, especially among the poor ⁽¹⁾.

The Royal Infirmary does not seem to have restricted the type of ailments treated and cases of infectious and venereal diseases were admitted. The infirmary, the only general hospital in Glasgow in the early nineteenth century, was much concerned with treating fever and other infectious diseases until the municipal authorities took over this responsibility in the 1870's. The voluntary hospitals founded later in the century, after the municipal infectious disease hospitals had been established, did not face this problem. Neither the Western Infirmary, the Victoria Infirmary ⁽²⁾, nor the Sick Children's Hospital admitted cases of infectious disease ⁽³⁾. In addition to treating adults both the Royal and the Western Infirmaries also treated children.

(iii) Management and financing

The infirmaries were administered by managers and governors elected or nominated (as laid down in their constitutions) by the town council; the university, the trade and professional organizations of the city, and by the subscribers. From the way in which the boards of management were made up it is evident that the administration of the infirmaries was in the hands of members of the medical establishment of Glasgow drawn from the Faculty of Physicians and Surgeons and the university, and representatives of the administration of the city and its neighbouring police burghs ⁽⁴⁾.

1. 1st Annual Report of the Glasgow Hospital for Sick Children (1883), p.5.
2. Constitution of the Victoria Infirmary, op.cit. p.8.
3. 1st Ann. Rep. Glasg. Hosp.....
4. Appendix III.

The main source of the voluntary hospitals' funds was a system of annual subscriptions; in exchange benevolent subscribers were entitled to nominate patients. At the Royal Infirmary, for example, those who subscribed £10, or £1 ls. each year, were entitled to recommend one patient to the hospital annually on the form of recommendation, the so-called "subscriber's line", which was printed on the back of the infirmary's Annual Report. Incorporations and church congregations which subscribed £3 3s. could recommend two patients and the magistrates of the city, as representatives of the Corporation, were entitled to recommend 35 patients each year. Similar arrangements for subscribers obtained at the Western Infirmary ⁽²⁾, at the Victoria Infirmary ⁽³⁾, and at the Hospital for Sick Children ⁽⁴⁾.

A recommendation by a subscriber did not entitle a patient to unlimited hospital treatment. The Victoria Infirmary, for example, limited the period of treatment to 40 days unless the Visiting Physician or Surgeon certified that a longer stay in hospital would be of benefit, in which case the patient had to get a second subscriber's line ⁽⁵⁾. The same rule operated at the Western Infirmary ⁽⁶⁾. Subscribers who nominated patients to the Royal Infirmary were responsible not only for the burial expenses of those they recommended who subsequently died in the infirmary but they were also obliged to remove their nominees "when it is not proper that they should continue any longer in it" ⁽⁷⁾. Those

1. H. Lamond, *The Constitution, and Rules and Regulations of the Glasgow Royal Infirmary* (Glasgow, 1867).
2. See 1st Annual Report of the Western Infirmary of Glasgow (hereafter W.I.G.) (1875).
3. *Constitution of the Victoria Infirmary*, op.cit.
4. Representatives of the industrial workers who subscribed to the hospital were entitled to the same privileges as individual subscribers. 1st Ann. Rep. Glasg. Hosp. op.cit. The hospital employed a Collector to collect subscriptions and donations, GHB B 7/1/3, p.14.
5. *Constitution of the Victoria Infirmary*, op.cit. p.10. The number of patients in hospital for longer than 40 days was reported to the House Committee each week, see GHB B 9 Minutes 1890-1, p.27.
6. 14th Ann. Rep. W.I.G., a fresh subscriber's line was required "for every period over 40 days residence in the Hospital".
7. Lamond, op.cit. p.10.

who failed to remove a patient in these circumstances had to pay the Infirmary 1s.6d. a day for the rest of the patient's stay ⁽¹⁾. In practice the medical staff of the Royal Infirmary do appear to have kept some patients in hospital for longer than was warranted by the subscriber's lines arguing that to assess "how far each case is one holding out hope of ultimate recovery" was a matter of clinical judgement ⁽²⁾. No doubt this concession applied only to cases with a good prognosis. Others were discharged after the arbitrarily defined period allowed by the subscribers' lines as "relieved" or "dismissed on other grounds".

Businesses and industrial concerns also made donations to the hospitals no doubt regarding them as contributions towards the cost of treatment of their employees' industrial injuries. In 1870 the North British Daily Mail had pointed out that though workers and employers contributed to the infirmaries the "intermediate population" of "tradesmen, shopkeepers, and professional men subscribe comparatively little" because there was no "systematic means of bringing the claims of the Infirmary to their notice" ⁽³⁾. The paper suggested that "one Sabbath at least each year should officially or at least by universal consent of all the churches in the town, be set apart for advocating the invaluable benefits of the Infirmary, and receiving collections in its aid from all classes" ⁽⁴⁾.

1. Lamond, op.cit.
2. G.H.B. 1/1/14. Glasgow Royal Infirmary Records, 13, pp.66-7, and see p.244. Some surgical patients were kept in hospitals for up to 179 days but as Table XX shows the average length of patient stay at the Infirmary was under 40 days.
3. North British Daily Mail, Dec. 26 1870.
4. *ibid.*

This suggestion was not taken up at this time. In 1873 a national organization, the Sunday Fund, was set up to raise funds for hospitals through the churches by designating one Sunday each year as the day on which special church collections would be made ⁽¹⁾. This scheme was not adopted in Glasgow for another twenty years, until the early 1890's when the three infirmaries had a combined deficit of £17,135 and steps were taken to enlist church support ⁽²⁾. In March 1894 a deputation of representatives of the three infirmaries, led by the Lord Provost, met the Presbytery of Glasgow to ask for the support of the congregation of the city. In the previous year Glasgow congregations had contributed only £775 to the infirmaries; in the same year the established churches of the much smaller city of Aberdeen had given over £1,000 to their local infirmary ⁽³⁾. On the occasion of this meeting it was agreed that some action should be taken and so in May 1894 the Business Committee of the Presbytery of Glasgow recommended that a Hospital Sunday should be held in the city ⁽⁴⁾. The three presbyteries of the city, the Roman Catholic churches, and most of the other denominations agreed to cooperate in this endeavour ⁽⁵⁾. The first Glasgow Hospital Sunday was held on October 28th 1894 and raised £3,600 which was allotted to the three infirmaries on the basis of the average daily number of beds occupied in each of the three in the past year ⁽⁶⁾. In the years that followed some £4,000 was raised by the annual Hospital Sunday. In 1896,

1. B. Abel-Smith, The Hospitals, 1800-1948 (1964), p.135.

2. Glasgow Herald, Feb. 9 1894.

3. ibid. March 8 1894.

4. ibid. May 2 1894.

5. ibid. June 15 1894. In 1886 the Secretary of the W.I.G. had commented on the lack of contributions from the Roman Catholic churches. He suggested that the R.C. churches should be invited "to join their brethren of other denominations in helping institutions that are essential to the wellbeing of the community". The Sanitary Journal, X (1886) 39.

6. Glasgow Herald, March 21 1895.

for example, £4,342 was collected of which £4,101 was given to the infirmaries, £2,172 to the Royal, £1,475 to the Western, and £498 to the Victoria Infirmary (1).

The infirmaries found local working men to be a much greater source of support than local churches. As early as 1849 the managers of the Royal Infirmary expressed their "unfeigned satisfaction at the meritorious and successful efforts hitherto made by the industrious classes" in local industries who had collected £1,014 for the infirmary (2). Three years later in 1852 when local working men had given £1,064 the infirmary managers remarked on the "undiminished interest which, during the last few years, the working-classes have taken in the Management of the Infirmary" which "affords a gratifying proof that they can appreciate the mutual benefits which such an Institution can confer" (3). This support continued. In 1869 employees in local industries contributed £5,801 and the North British Daily Mail commented that they ought to be represented on the Infirmary's board of managers as were ministers of local congregations which had contributed only £937 (4). By 1875 contributions from local working men amounted to £6,427 which was not much less than the £7,420 that the Royal Infirmary raised through annual subscriptions in that year. In 1883, however, when contributions from working men had fallen to £5,392 it was suggested that systematic collections from the men might be more effective (5). Three years later the Secretary of the Western Infirmary described the new system originated by the Glasgow infirmaries which had been adopted in

Glasgow Herald,

1. Glasgow Herald, April 14 1897.
2. 55th Ann. Rep. Royal (1849) and see Appendix IV.
3. 58th Ann. Rep. Royal (1852).
4. North British Daily Mail, Nov. 15 1870.
5. 89th Ann. Rep. Royal (1883).

many industrial concerns: "By consent of the employees a small sum, varying from 1d. to 2d. is deducted from each fortnightly pay. This sum is retained by the pay clerk and handed over to a committee of the workmen appointed by themselves, and is allocated and paid over by them to such charitable institutions as they think most deserving and servicable to the community".

He commented that this method "has the double merit of being in a measure unfelt by the subscribers, and of producing in the aggregate over three times as much as was obtained under the old system ⁽¹⁾.

The extent of working class support of the infirmaries can be gauged from the fact that in 1900 the Royal Infirmary alone received £8,424 from "employees on public works", £9,970 from annual subscriptions, £78 from Clyde steamers ⁽²⁾, and £2,339 from Hospital Sunday and other church collections ⁽³⁾. Support for the Western Infirmary was of the same order ⁽⁴⁾.

The scale of support given by Glasgow working men to their local hospitals was not really unusual. On the occasion of the official opening of the Victoria Infirmary, the Duke of Argyll (who was on the boards of management of several London hospitals) remarked that there had been astonishment when he had mentioned in London that the Glasgow infirmaries received "a very large percentage of their total income ... from the systematic subscriptions of working men" ⁽⁵⁾. But the scale of support for Glasgow hospitals was only unusual in comparison with working class support for London hospitals. In 1910 working men contributed

1. H. Johnston, "Scottish hospitals and their means of support", Sanitary Journal, X (1886), 38. This scheme was probably a local Hospital Saturday Fund, a national scheme for organizing working men's collections for local hospitals, Abel-Smith, op.cit. p.135 refers to Glasgow having one of the largest Hospital Saturday Funds in the country.
2. This may well have been from collections taken among passengers.
3. 106th Ann. Rep. Royal (1900).
4. Appendix V.
5. Glasgow Herald, 15 Feb. 1890.

63% of the ordinary income of the North Staffordshire Infirmary, 56% of that of the Royal Victoria Infirmary, Newcastle-on-Tyne, 44% of the income of the Royal Infirmary, Leicester, 23% of that of the Edinburgh Royal Infirmary, and 20% of the income of the Glasgow Royal Infirmary and 30% of that of the Western Infirmary, but only 1.7% of the income of the metropolitan general hospitals (1). Why the system of working men's contributions did not develop in London is unclear; perhaps one reason is that the old and influential chartered hospitals were supported by endowments rather than by subscriptions and contributions.

The appreciation felt by Glasgow infirmaries for the support of local working men is indicated by the fact that both the Royal Infirmary (2) and the Western (3) arranged for representatives of working men to be elected to their respective boards of management and that from its foundation the Constitution of the Victoria Infirmary entitled workmen in every shipyard, factory, or workshop which had donated £50, or contributed £5 annually, to nominate one representative to the Court of Contributors and these representatives elected three of their number to the Board of Governors of the Infirmary (4).

1. "The voluntary hospitals and the Insurance Act", anon. Hospital LIII (1912), 344.
2. 106th Ann. Rep. Royal (1900).
3. 25th Ann. Rep. W.I.G. (1899).
4. Constitution of the Victoria Infirmary, op.cit. p.37. Glaister commented that one result of the system of working men's contributions was that workmen now regarded treatment at the infirmaries as a right. "This ... seems now to be looked upon by the workmen as a right to use the resources of the hospital by themselves and their families when and how they choose". J. Glaister, "The relation between hospital and home relief of the sick poor", Transactions of the Fourth International Home Relief Congress (Edinburgh, 1905), 286.



GLASGOW ROYAL
INFIRMARY,

iv. The Royal Infirmary

The Royal Infirmary opened in 1794 with the object of treating the sick poor. It had a fine building sited by Glasgow Cathedral, beds for 136 patients and a large operating theatre (1). For a long time the work at the Royal Infirmary was hampered by the need to deal with infectious diseases for from the beginning of the nineteenth century outbreaks of typhus fever swept through the poorer quarters of the city. There were major epidemics in 1818, 1828, 1837 and 1847 and Table XVII shows that up until the middle of the century fever cases constituted an increasing proportion of the patients treated at the Infirmary. Thereafter they declined in number.

Table XVII (2)

Fever patients treated at the Glasgow Royal Infirmary as a percentage of total patients treated 1795-1874.

1795-9	13.7%	1820-4	18.2%	1845-9	45.1%	1870-4	15.5%
1800-4	20.4%	1825-9	40.8%	1850-4	40.5%		
1805-9	7.8%	1830-4	48.0%	1855-9	20.5%		
1810-4	5.5%	1835-9	56.2%	1860-4	27.0%		
1815-9	37.6%	1840-4	51.6%	1865-9	25.1%		

Epidemic diseases like fever break out without warning and made sudden and unpredictable demands on hospitals. Ideally, special fever hospitals with wards that are kept empty in anticipation of epidemics are required and eventually such hospitals were established in Glasgow which were devoted solely to the treatment of infectious diseases. Until these hospitals were set up much of the burden of coping with fever epidemics fell on the Royal Infirmary and the history of the hospital in the first half of the nineteenth century reveals how fever dominated its functioning.

1. Buchanan, op.cit. p.8.
2. Data from Annual Reports of the Royal Infirmary.

The growing number of fever cases soon taxed the Infirmary's limited resources as increasingly the treatment of ordinary diseases of the sick poor had to give way to the more urgent needs of victims of fever (1). Existing accommodation was often inadequate; in 1815 the hospital which usually housed 136 patients held 178 at one time and the directors' office was turned into a temporary ward (2). A new building with 72 beds was therefore erected (making a total of 208 beds) but this too was soon full to capacity as "low fever" swept through "the close and ill-aired alleys and lanes of this city" (3). As an Annual Report comments it was in homes in these poor areas "that this

contagion fixes its most favourite abode: it is here, that if not generated, yet at least fostered, as at the present moment, by all the privations of penury, it is observed to assume its most malignant form, as well as to spread with its widest range and its most destructive sway" (4).

On this occasion two whole floors of the new building were used for fever cases. In 1817 (and again in 1818) the demand for admission to the Infirmary by fever patients was so great that it found itself admitting "a proportion of Fever Patients, much greater

than was consistent either with the original purposes of the Institution, or with the rights and privileges of the Contributors and Subscribers" (5).

In order to care for these fever patients (who had to be treated in separate fever wards) normal admission procedures were abandoned and

1. The Infirmary was in existence for such a short time in the eighteenth century that it is really not possible to compare the experience of the hospital in the eighteenth and nineteenth centuries.
2. 21st Ann. Rep. Royal (1815).
3. 22nd Ann. Rep. Royal (1816).
4. *ibid.*
5. 24th Ann. Rep. Royal (1818).

the infirmary authorities "were led to be less scrupulous in regard to recommendations, than in healthful times" (1). Fever cases were admitted in excess of the number of patients that subscribers were entitled to recommend to the Infirmary. By December 1817 patients recommended by the magistrates alone threatened to fill the entire hospital. The managers, faced with the additional expense of these fever cases, decided that any subscriber who recommended more patients than his subscription warranted would have to pay £3 for each additional case. Even this was not enough as fever continued to rage in the city and so at the end of the year a group of city gentlemen formed a Fever Committee and set up a temporary fever hospital which was financed by public subscription, accommodated 200 patients and was in use from March 1818 until July 1819 (2). In order to facilitate the work of the Fever Committee and also to make the best use of the Infirmary's own fever wards the General Court of the hospital had resolved in January 1819 that the directors should be empowered to relax admission requirements and admit fever patients without a subscriber's recommendation (3). However, fever admissions were falling by this time. By February the front wards of the Infirmary were declared free of fever and in July the temporary fever hospital was closed. The Infirmary could concentrate once again on treating the everyday injuries and diseases of the poor.

The relief was temporary, however. For the next thirty years the Royal Infirmary was periodically faced with outbreaks of fever which disrupted the normal functioning of the hospital. In 1824, with two wards in the new building already being used for fever patients,

1. Buchanan, op.cit. p.12.
2. R. Cowan, Statistics of Fever and Smallpox in Glasgow (Glasgow, 1837), p.11.
3. 25th Ann. Rep. Royal (1819).

medical and surgical patients had to be discharged from two additional wards to make room for fever cases. As a precaution the temporary hospital used in 1818 was again equipped for use ⁽¹⁾. Fever again filled the Infirmary's wards in 1827 and on this occasion a Relief Committee, which had discovered that many of the unemployed were among its victims, offered the Infirmary a large contribution to its funds (£500) if it would open a temporary fever hospital to treat these unfortunates ⁽²⁾. And so the Infirmary used the Blind Asylum's building at Spring Gardens as a temporary hospital and there, between February and June 1827, 255 fever cases (mostly Irish labourers) were treated ⁽³⁾.

It was becoming evident that the Infirmary, the only general hospital in the city and the only hospital treating cases of fever, required separate, additional fever accommodation. Work was therefore started on the construction of a fever house but before its completion fever again increased. In mid-1828 another ward at the Infirmary was appropriated for fever cases and so was the managers' office. The managers sought in vain for a suitable building to rent and use as a temporary fever hospital but eventually had a wooden hut put up in the infirmary grounds which held 68 patients ⁽⁴⁾. Only in the following year, when fever was declining, was the new Fever Hospital at the Infirmary opened ⁽⁵⁾. Even this proved to be insufficient in the

1. 30th Ann. Rep. Royal (1824).
2. 34th Ann. Rep. Royal (1828).
3. 33rd Ann. Rep. Royal (1827).
4. 34th Ann. Rep. Royal (1828).
5. 35th Ann. Rep. Royal (1829).

epidemic of 1831 and part of the front building of the Infirmary had to be cleared of patients to make room for fever cases (1).

Outbreaks of typhus continued to occur and there was still no adequate, permanent hospital accommodation. Even the extension to the fever house at the Infirmary, which was opened in 1833 and added 80 to the existing 120 fever beds, proved to be inadequate when fever flared up. In February 1837 two general wards had to be cleared for fever cases and the Infirmary managers again cast around for a suitable building to use as a temporary hospital (2). They were allowed to open a temporary fever hospital in the old cholera hospital in Albion Street by the newly instituted Board of Health of the city (3). For the next few years the Infirmary was able to manage, although in 1843 the wards were very crowded and 450 fever cases were treated in general wards in the front buildings (4). The respite was short; in 1846 there was a severe typhus epidemic and the hospital became so overcrowded that the managers took over the new building of the Lock Hospital (the V.D. hospital) in Rotten Row for female fever patients for six months. In addition a temporary wooden building, which held 140 beds, was erected on the hospital green and was used from June 1847 until February 1848 accommodating 407 patients in all (5).

1. Not only was there an outbreak of fever in 1831, there was also the threat of cholera which prompted the city magistrates and the Sheriff of the county to set up an ad hoc Board of Health in November to take measures to deal with both diseases. (The Board set up 5 temporary cholera hospitals but only one, in Albion Street, was required, J.A. Lawrie, 1st & 2nd Reports of the Cholera Hospital, Albion Street, Glasgow (Glasgow 1832). The Board also opened a temporary, 135 bedded fever hospital in a disused cotton mill in King Street, Mile End, which was run by the Royal Infirmary (37th Ann. Rep. Royal 1831). While this hospital was open between January and August 1832 1,145 patients were treated (Cowan, (1837), op.cit.p.15).
2. 43rd Ann. Rep. Royal (1837).
3. Bell & Paton, op.cit, p.183.
4. 49th Ann. Rep. Royal (1843).
5. 52nd Ann. Rep. Royal (1846), and see J.C. Steele, "View of the sickness and mortality in the Royal Infirmary of Glasgow during the year 1847", Edinburgh Medical and Surgical Journal, XX (1848), 146.

Not until the 1840's did the problems caused by fever begin to diminish. This decade saw the beginning of statutory provision for the treatment of epidemic diseases and eventually the Royal Infirmary ceased to admit infectious patients and was able to concentrate on the treatment of other acute medical and surgical conditions. With the passing of the Scottish Poor Law Act of 1845 the new parochial boards were made responsible for providing medical treatment for the sick poor and this had an immediate effect on the position of the Infirmary in relation to the treatment of fever in Glasgow. As the managers noted, the new law "has obviously made a great change in the position and aspect of affairs". In the outbreak of 1846-7 the City Parochial Board took over the old Town's Hospital as a fever hospital and Barony Parochial Board put up fever sheds in Anderston; "the spirited and vigorous manner in which the City and Barony Parochial authorities have exercised the powers so intrusted to them, in dealing with the present Epidemic", the Infirmary managers noted, "entitle them to the warmest approbation of the public" (1). In spite of this the Infirmary treated more fever cases in 1847 than at any other time (2). But thereafter, although there were outbreaks of fever in the 1850's and '60's (in 1851 and '52 the Infirmary had to reopen the wooden fever sheds put up in 1847), never again were so many fever patients treated in the Infirmary. The problem of housing and treating fever victims could now be shared with the new parochial authorities and later with the municipal authorities. The Royal Infirmary could return to the provision of general medical and surgical treatment which had been its original purpose.

1. 53rd Ann. Rep. Royal (1847).

2. Out of a total of 7,607 patients treated 5,224 were cases of fever.

By the time of the fever and smallpox epidemics of the 1860's there had been significant developments in the municipal administration of the city. The Glasgow Police Act of 1862 was followed by the appointment of a Sanitary Committee in January 1863 and by the appointment of the city's first medical officer of health ⁽¹⁾. That autumn was marked by an increase of fever and shortage of hospital accommodation. The Infirmary managers now placed the responsibility for treating non-pauper fever cases squarely on the shoulders of the Police Board. At a meeting with the City Parochial Board and the Police Board the Infirmary managers explained that they were unable to give any assurance that they could treat all the fever cases that might well be produced in the threatened epidemic. "It appeared to them that it lay more properly within the province of the Police Board, under powers conferred upon the Board by the Glasgow Police Act, to make provision, in time of epidemics, for the treatment of disease" ⁽²⁾.

The Police Board therefore arranged to provide temporary fever accommodation, as they were empowered by the 1862 Police Act, and built a wooden pavilion hospital in Parliamentary Road which was opened in 1865 and was one of the earliest municipal fever hospitals ⁽³⁾.

Glasgow Royal Infirmary was by no means unique among Scottish voluntary hospitals at this time in treating fever; Edinburgh Royal Infirmary also provided hospital care for fever cases ⁽⁴⁾. Scottish voluntary hospitals generally had fever wards or separate fever houses which reduced the risk of cross-infection within the hospital. This

1. See above, p. 69.
2. 70th Ann. Rep. Royal (1864).
3. See below, p. 226 ff.
4. Brotherston, op.cit. p.65.

was not the case in England where infectious cases were usually excluded ⁽¹⁾ (presumably because of the risk of infection) although eventually some did begin to take some responsibility for treating fever and built fever wards or fever hospital blocks ⁽²⁾.

Throughout the years in which the Infirmary treated cases of fever the mortality of fever patients was higher than that of other patients (see Table XVIII).

Table XVIII.

Mortality of general patients and of fever patients treated in the Royal Infirmary.

Year	Total general patients treated	Mortality	Fever patients treated	Mortality
1837	1813	10.8%	4481	12.4%
1840	2430	10.0%	3385	13.2%
1845	2458	9.5%	535	14.0%
1850	2166	9.9%	778	20.0%
1855	2550	9.0%	866	14.7%
1860	3139	8.1%	603	14.4%
1865	3765	9.4%	2435	15.7%
1870	4305	8.6%	1888	9.3%
1875	5112	11.6%	108	14.8%

It seems likely that it was because fever was such a serious and often fatal condition that the Royal Infirmary had to give fever cases priority over surgical and medical cases in their admissions policy.

Apart from the problem of having to admit fever cases with the attendant danger of cross-infection the Infirmary, in the absence of other agencies, had been forced to deal with victims of smallpox, a far

1. 6th Report of the Medical Officer of the Privy Council (P.P. 1864, XXVIII) p.470, Appendix 15.
2. Woodward, op.cit. p.74.
3. Source, Ann. Reps. Royal -- no earlier data on fever deaths are available.

more infectious disease. Among the fever patients in the Fever Hospital there were also cases of smallpox and smaller numbers of those with scarlatina, measles, bronchitis, pneumonia, and phthises ⁽¹⁾. With the development of municipal hospitals for fever patients the Infirmary was beginning to be able to concentrate on the treatment of acute medical and surgical cases. In 1865 the number of beds in the Fever Hospital was reduced to 175 and two years later the northern part of the building was altered so that it could be used for medical and surgical patients leaving only 100 beds for fever and smallpox ⁽²⁾. By this time the Parochial and Police Boards were no longer sending fever cases to the Infirmary on a regular basis and the municipal Parliamentary Road Hospital was open permanently. The matter of smallpox now had to be considered. The Infirmary medical officers were anxious to reduce the risk of cross-infection from smallpox and had advised that patients with the disease, then treated in special wards in the Fever Hospital, should be treated in a separate building ⁽³⁾. When, therefore, it was found in 1871 that smallpox had spread from patients in the smallpox wards to other patients, the Infirmary authorities accepted the Board of Police's offer of smallpox beds in their hospital and stopped admitting smallpox cases ⁽⁴⁾.

Now that Glasgow had a municipal infectious disease hospital and that the Public Health (Scotland) Act of 1867 bound all local authorities to provide facilities for treating infectious diseases, the Royal Infirmary had to decide whether it should continue to treat any

1. Ann. Reps. Royal.
2. 73rd Ann. Rep. Royal (1867).
3. 69th Ann. Rep. Royal (1863).
4. They arranged with the Board of Police to treat cases with Infirmary subscribers' lines on payment of £1 for patients from within the municipal boundary and £2 from those from without (77th Ann. Rep. Royal (1871)).

cases of infectious disease. In 1872 the Board of Police stopped admitting patients to its hospitals from beyond the municipal boundary and the Infirmary was faced with the prospect of resuming the treatment of smallpox cases recommended to the hospital from beyond the city. On the advice of the medical staff who feared further cross-infection the Infirmary decided to stop accepting cases of smallpox altogether ⁽¹⁾. Fever cases from outwith the city continued to be treated until this provoked the wrath of Dr. Russell, the medical officer of the city, who accused the Infirmary of importing infection into Glasgow and undermining the 1867 Public Health Act by providing hospital treatment for patients from local authorities like the Burgh of Partick which had made no provision as yet for the treatment of infectious diseases ⁽²⁾. The Infirmary authorities acted accordingly and within a few years its subscribers were asked to note, "that as provision is now made

under Act of Parliament for treatment of infectious and contagious diseases, the Infirmary does not now receive Patients suffering from smallpox, fever or other infectious or contagious disease" ⁽³⁾.

The occasional case of typhoid fever was still treated in the hospital, to the consternation of the medical staff who were worried about the risk of infection ⁽⁴⁾. Thus the Infirmary had finally relinquished to the statutory authorities the duty of providing hospital care for the treatment of infectious diseases.

1. 78th Ann. Rep. Royal (1872).
2. G.C.A. M.P. 11, J.B. Russell, Report by the M.O.H. of Glasgow on certain correspondence with the Royal Infirmary (Glasgow, 1875).
3. 86th Ann. Rep. Royal (1880).
4. 90th Ann. Rep. Royal (1884).

The need to admit fever and other infectious cases caused a number of serious problems for the hospital and seriously hampered its work. In the first place it kept down the number of non-infectious cases that could be treated so that when the Infirmary ceased to admit fever cases the number of general medical and surgical cases treated began to increase significantly. In an industrial city like Glasgow there was bound to be a growing number of industrial accidents and these begin to figure more prominently among the increasing number of surgical cases that could now be treated in the Infirmary. An annual report notes that considering "the vast and increasing amount of machinery at

work, the extensive mining, railway, shipbuilding, and other operations in and about the city, and the great traffic which fills our streets, it is easy to perceive, how there must be a long list of casualties affecting the labouring classes of a community, who can only receive adequate surgical aid in institutions such as this" (1).

The Ward Day Books and Journals reveal that accident victims were brought in from as far as Coatbridge and Helensburgh (2). The number of accident cases admitted (and they were admitted without subscribers' lines) increased from some 500 each year in the 1850's to over 1,000 in the 1870's. In the 1860's, when annual reports give the number of surgical and medical patients separately for the first time, there were equal numbers of medical and surgical patients, some 2,000 of each annually; but by 1882 the managers reported that "generally speaking the Surgical cases exceed the Medical ones in number by about one half (3), as Table XIX shows.

1. 59th Ann. Rep. Royal (1853), and see 62nd Ann. Rep. Royal (1856).
2. G.H.B. 6/2/8, p.280 & see G.H.B. 6/2/20.
3. 88th Ann. Rep. Royal (1882).

Table XIX

Royal Infirmary: Average annual numbers of Surgical and Medical Patients per decade and average mortality.

Year	Average number medical patients	Medical mortality	Average number surgical patients	Surgical mortality
1863-9	2023	11.7%	2089	7.1%
1870-9	2381	13.8%	2558	8.8%
1880-9	2283	11.4%	2887	7.4%
1890-9	2194	13.3%	3547	8.4%
1900-9	2451	14.3%	5050	8.9%

For this reason the number of physicians, which had been increased to five when the redundant fever physician had been transferred to the medical wards, was reduced to four and the number of surgeons increased to six "so as to correspond more nearly, as compared with the Surgical, to the number of Medical cases usually in the House" (2). The increase in surgical cases had led already to the conversion of part of the Fever Hospital into two small operating theatres (3). As Table XIX shows the number of surgical patients treated in the Infirmary each year doubled by the first decade of the twentieth century. At the same time the length of stay of surgical patients fell (no doubt as the result of improved surgical techniques) while that of medical patients (who did not benefit from many important therapeutic advances) remained much the same (Table XX).

1. Source, Ann. Reps. Royal. 1863 was the first year in which these data are given.
2. 90th Ann. Rep. Royal (1884). Unlike the voluntary hospitals in other Scottish and English cities the medical staff in Glasgow hospitals was not honorary (Glasgow Herald, Nov. 1897). In 1896 the salary of physicians and surgeons at the G.R.I. was £50 p.a. (Lamond, op.cit).
3. 88th Ann. Rep. Royal. op.cit.

Table XX (1)

Average length of stay in the Royal Infirmary of Surgical and Medical Patients (in days).

Year	Medical Patients	Surgical Patients
1850-9	25.3	31.9
1860-9	27.1	33.7
1870-9	28.8	34.9
1880-9	30.9	38.3
1890-9	35.6	34.2
1900-9	30.7	26.0

As Table XXI shows, there was a great increase in the number of operations performed at the Infirmary and a significant decline in post-operative mortality from the 1870's onwards.

Table XXI (2)

Total operations performed at the Royal Infirmary and mortality.

Year	Operations	Post-operative mortality
1851-60	2014	10.8%
1861-70	3403	12.4%
1871-80	5257	8.6%
1881-90	9741	6.4%
1891-1900	16749	7.2%
1901-10	36729	5.1%

This was the result of revolutionary surgical techniques which were pioneered at the Royal Infirmary by Professor Joseph Lister. This led to a reduction in post-operative infection and mortality making more complex surgery possible and relatively safe.

In the early nineteenth century the admission of fever cases had exacerbated the overcrowding of the Infirmary and created problems in

1. Source, Ann. Reps. Royal.
2. *ibid.*

the surgical wards where so-called "hospital diseases" were a constant menace. As early as 1813 it was noted that additional accommodation was required to "prevent infectious disease, which are apt to arise" when wards were crowded (1). The hospital records show that in the crowded surgical wards at this time (some of which held twenty-six or twenty-seven patients instead of the fourteen they were designed to accommodate) patients' wounds "instead of mending are daily becoming worse, that all surgical operations however otherwise requisite, is from the same cause, entirely at a stand, on account of the risk of Hospital Gangrene almost certain to supervene, even on the slightest wounds" (2).

Again in 1815 "various instances of the old Hospital Gangrene", which were often fatal, were reported (3) and the Day Books of the wards contain many examples of post-operative erysipelas infections (4). The diseases that broke out in crowded wards, so called "hospital contagion" or "hospital diseases", were the scourge of all surgical wards before the introduction of antiseptics. They included erysipelas (St. Anthony's Fire) an often fatal streptococcal infection which caused an acute spreading inflammation of the skin and extensive inflammation and suppuration in muscle (5); pyaemia, a generalised form of septicaemia in which septic clots form in the veins and give rise to secondary abscesses; hospital gangrene which occurred in epidemics on overcrowded wards, tetanus, and spreading gangrene (6). Evidently these diseases were already a problem at the Royal Infirmary by the second decade of the nineteenth century.

1. 19th Ann. Rep. Royal (1813).
2. G.H.B. 1/1/4, p.122.
3. *ibid.* p.129.
4. See G.H.B. 6/2/1, pp. 32 & 79.
5. Topley and Wilson's Principles of Bacteriology, Virology and Immunity, G.S. Wilson and A. Miles, eds. (1975), p.1914.
6. R. Godlee, Lord Lister (1917), pp.124-5.

The Infirmary managers tried to combat hospital disease by keeping one ward empty so that patients from other wards could be transferred while their own wards were being cleaned; thus "by cleaning all the Wards in succession everything possible (is done) to prevent Hospital Disorders". Having an empty ward made it possible to deal with "an Hospital Epidemic, which, notwithstanding every care, will sometimes most unaccountably break out and whose progress it is of importance to have the means of suddenly arresting" (1).

Nevertheless, hospital diseases continued to be a problem at the Infirmary. In 1850 it was reported that instead of the front hospital being whitewashed, as was the usual practice, it had been replastered and painted to counter "local diseases" which had broken out among the patients (2) and in the following year the Infirmary managers congratulated themselves that this together with a reduction in the number of patients, had led to an improvement in the results of surgery since "those peculiar affectations which are so liable to arise and retard the recovery of operative and other surgical cases in Hospitals, and of which our own wards have so frequently been the scene, have, during the past year almost entirely disappeared" (3).

Clearly hospital diseases were a constant hazard of surgery at the Royal Infirmary at this time.

Woodward has suggested that hospital diseases were uncommon in the eighteenth century when hospitals were not crowded but became more

1. 30th Ann. Rep. Royal (1824).
2. 56th Ann. Rep. Royal (1850).
3. 57th Ann. Rep. Royal (1851).

common as hospitals became more crowded and more operations were performed in the nineteenth century ⁽¹⁾. In the absence of data on post-operative mortality for the first half of the nineteenth century and earlier it is difficult to say whether this was true of the Glasgow Royal Infirmary. As the Royal Infirmary was founded so late in the eighteenth century it had little experience of being anything other than crowded; the growing population of the city soon strained its very limited resources. There are reports of crowding and hospital diseases from the second decade of the century and by mid-century there was certainly an urgent need for more surgical beds but it is difficult to decide whether hospital diseases actually increased and became more common in this period. Post-operative mortality was relatively high in the 1850's and rose in the 1860's, as Table XXI shows ⁽²⁾. In 1852 three wards of the Fever Hospital were taken over for surgical cases ⁽³⁾ and this enabled surgeons to separate different types of cases and, "combat successfully with hospital gangrene, by carefully separating, from injuries and cases of operations, the numerous cases of burns and extensive ulcerating surfaces whose contaminating influence is apt to produce the most baneful results" ⁽⁴⁾. It was the need to reduce overcrowding in the surgical wards together with the increased demand for hospital beds which led to the construction of the new Surgical Hospital. This was completed in 1861 and should have provided 200 surgical beds ⁽⁵⁾, had not an outbreak of hospital gangrene led to a limit of 144 being placed on the maximum number to be admitted to the new hospital ⁽⁶⁾.

1. Woodward, op.cit. p.106.

2. See above, p.110.

3. 58th Ann. Rep. Royal (1852).

4. 59th Ann. Rep. Royal (1853).

5. 66th Ann. Rep. Royal (1860), making a total of 650 beds at the G.R.I.

6. 72nd Ann. Rep. Royal (1866).

Even the new Surgical Hospital did not prove to be immune to hospital diseases and there were outbreaks of pyaemia, erysipelas and hospital gangrene as Lister found on his appointment as Professor of Surgery at the university in the early 1860's.⁽¹⁾ He had to fight a long battle with the Infirmary managers, who wanted to squeeze more patients into his wards, to secure reasonable conditions for his patients. Of this he wrote, "though my patients suffered from the evils alluded to ⁽²⁾ in a way that was sickening and often heart rending yet none of my wards ever assumed the frightful condition which sometimes showed itself in other parts of the building, making it necessary to shut them up entirely for a time" ⁽³⁾.

The managers did take steps to improve conditions in the surgical wards after it had been reported in 1866 that hospital gangrene was prevalent⁽⁴⁾ but it was only with the introduction of Lister's antiseptic system in the late 1860's that it became possible to prevent hospital diseases; Lister's wards were converted from being "some of the most unhealthy in the Kingdom into models of healthiness ..." ⁽⁵⁾. Soon his antiseptic system of surgical treatment had been widely adopted both in Britain and abroad and post-operative mortality fell.

1. Godlee, op.cit. p.84, and J. Lister, "On the effects of the antiseptic system of treatment on the salubrity of a Surgical Hospital", The Collected Papers of Joseph Baron Lister, II (1909), p.124. Lister was appointed to the chair of surgery at the university in 1860 and as surgeon to the Royal Infirmary in 1861.
2. i.e. from hospital diseases.
3. Lister, op.cit. the managers of the Royal Infirmary denied that conditions in the Infirmary had been so bad (Glasgow Herald, Jan.22 1870) but Lister gave further evidence in support of his contention Glasgow Herald, Feb.6, 1870.
4. G.H.B. 1/1/14, pp. 73 & 137.
5. Lister, op.cit. No doubt the decline in overcrowding was a contributory factor. Although Lister did not stay in Glasgow (he moved back to Edinburgh in 1869) he influenced a whole generation of students; J.B. Russell, the first full-time M.O.H. of Glasgow, and Joseph Coats the first Professor of Pathology at Glasgow University and an editor of the Glasgow Medical Journal were notable among them (see O.M. & V.Coats, Dr. and Mrs. Joseph Coats (Glasgow, 1929). Coats was one of the Paisley cotton spinning family of that name. Another of Lister's students was William McEwen the surgeon who pioneered aseptic surgery and surgery of the brain (see A.K. Bowman, Life of Sir William McEwen (1942)).

Table XXII
(1)

Average annual number of patients discharged classified as:

Year	Total	Cured		Relieved		Died		Advice		Desire		Irregular		Improper		Remitted		Incurable	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1795-9	461	288	62.4	62	13.4	27	5.8	27	5.8	37	8.0	19	4.1						
1800-9	751	503	66.9	75	10.	47	6.2	41	5.4	58	7.7	20	2.6	6	0.7				
1810-9	1368	926	67.6	168	12.2	102	7.4	47	3.4	80	5.8	14	1.0	7	0.5	13	0.9	7	0.5
1820-9	2140	1602	74.8	156	7.2	195	9.1	44	2.0	71	3.3	22	1.0	17	0.7	20	0.9	13	0.6
1830-9	3813	3011	78.9	200	5.2	413	10.8	54	1.4	82	2.1	30	0.7	2	0.05	7	0.1	12	0.3
1840-9	4525	3454	76.3	389	8.5	514	11.3	56	1.2	46	1.0	36	0.7	20	0.4	0.4		9	0.1
1850-9	3644	2403	65.9	547	15.0	399	10.9							295	8.0				
1860-9	5297	3286	62.0	905	16.7	570	10.7							535	10.1				
1870-9	5434	3154	58.0	1064	19.5	562	10.3							653	12.0				
1880-9	5142					466	9.0												
1890-9	5739					591	10.2												
1900-9	7502					802	10.6												

1. Source, Ann. Reps. Royal.

It is clear from data in the hospital reports (see Table XXII) that the number of patients treated in the Infirmary increased in the fever epidemics of the 1830's and 1840's and again at the end of the century; that the number said to be cured reached its height (in the period for which this information is available) in the '30's and '40's when many fever cases were admitted and the outcome of treatment was obvious; the number "relieved" varied and so did the number of those dismissed "with advice", "by desire", "being irregular" etc. but as earlier discussion has shown this classification was extremely arbitrary and rather meaningless (1). The data on mortality are probably the most reliable indication of success of treatment and as Table XXII shows mortality did not fall. It rose in the early part of the century as the number treated each year increased and remained relatively stable for the rest of the period. The improvement in post-operative mortality was not sufficient to offset the high mortality among medical patients (see Table XIX).

The number of surgical cases treated increased relatively more than the medical cases (Table XIX). Of medical cases the number with pulmonary tuberculosis and other respiratory diseases actually declined, as Table XXIII shows, at a time when there was a great need in Glasgow for hospital care for pulmonary tuberculosis (2)

1. See above, pp. 84-6.
2. See below, pp. 369-80. After Koch's discovery of the T.B. bacillus in 1862 it was known that pulmonary tuberculosis was infectious and the fall in T.B. admissions from the 1880's probably reflects the desire of the Infirmary to limit the risk of infection.

Table XXIII (1)

Average annual number of cases of phthisis (pulmonary T.B.)
and othe respiratory diseases treated per decade.

Year	Phthisis cases (2)	Other pulmonary diseases (3)
1850-9	149	224
1860-9	297	403
1870-9	337	529
1880-9	306	472
1890-9	203	416
1900-9	60	386

Until after the middle of the century the nursing staff of the Infirmary consisted of untrained and often unsuitable women. The situation in the 1860's has been described. "Some of the women

were old and worn out, some were dissipated, and there were few indeed who showed any real aptitude for the work.

On going into the wards at night the matron would find nurses fast asleep, their slumbers not infrequently the deeper of their potations, while the wretched patients looked in vain for the hand that should smooth the pillow, and administer the reviving draught" (4).

The nurses were poorly paid and their living conditions were bad which did not encourage "really desirable persons to enter upon so arduous a calling". The position of the nurses in the hospital was unlikely to attract "a superior class of women" since they were expected not only to look after the patients but to do "all the drudge work connected with the cleansing of the wards and corridors. As a natural consequence the ranks are too often recruited with women who, from want of character or other disqualification, could not obtain any other situation" (5).

1. Source, Ann. Reps. Royal.

2. In the medical wards.

3. In the medical and fever wards.

4. Glasgow Weekly Herald, Dec. 15 1866.

5. ibid. they were paid £9 - £10.10s p.a., slept in communal dormitories and had to cook and eat their food in the wards (86th Ann. Rep. Royal 1880).

The standard of nursing rose, however, after the appointment of Miss Tait as matron in 1864. Nurses' wages and conditions were improved and the "old good-for-nothings" were replaced by "handy, active women who seem to take an interest in their work" (1). It was now

"quite a pleasure to look into the wards and see them in their tidy dresses, with their kindly sedate faces, as they move noiselessly about, here adjusting a pillow or helping to dress a wound, there administering a potion with cheery words that may well enhance its efficacy".

The doctors testified "that they are much better off than before, having now a staff of nurses on whom they can depend to carry out their instructions" (2). After 1879 when Rachel Strong was appointed as matron nurse training at the Royal Infirmary was established in a systematic manner (3).

The limited accommodation at the Royal Infirmary was relieved somewhat by using several convalescent homes which took patients for periods of two to four weeks to complete their recovery from what by modern standards were very long periods in hospital. The value of convalescent homes was widely recognised; Florence Nightingale wrote on the matter, "If every hospital, every workhouse, every town, had its Convalescent Home by the seaside, or in the hills, there is probably no one thing which would conduce more to the health of the population, or to the diminution of pauperism, by restoring the hardworking to their homes and work, and by preventing whole families from becoming a burden on the rates" (4).

1. Glasgow Weekly Herald, Dec. 15 1866, op.cit.

2. ibid.

3. R. Strong, Reminiscences (Edinburgh, 1935); she had trained as a nurse at the Nightingale School, St. Thomas's Hospital; and see E.S. Haldane, The British Nurse in Peace and War (1923), p.78.

4. F. Nightingale to B. Clugston, West of Scotland Seaside Homes, Dunoon (Glasgow, 1871).

The Glasgow Convalescent Home, which like other similar homes was a charitable institution was supported by voluntary contributions and annual subscriptions, was the home most closely associated with the Royal Infirmary. It had developed from the Royal Infirmary Dorcas Society ⁽¹⁾. In 1864 the society's secretary, Miss Beatrice Clugston, saw that a home was needed where Infirmary patients could convalesce and so a public meeting was arranged (with the Lord Provost John Blackie in the chair) to launch the project. With funds raised at a bazaar ⁽²⁾ two villas were acquired at Bothwell which were used until a new, purpose-built home was completed at Lenzie Junction in 1873. The infirmary also sent patients to the West of Scotland Seaside Homes at Dunoon ⁽³⁾ and to the Seaside Home at Saltcoats. The Infirmary recognised the value of having access to all kinds of convalescent homes; "As it is well known that many persons derive more good from residence at the seaside than in the country", the managers noted, "it would conduce greatly to the welfare of the patients if the Managers of the Infirmary had the permanent privilege of sending them either to coast or country, as the medical officer advised" ⁽⁴⁾.

The Glasgow Convalescent Home admitted patients from the Infirmary on the recommendation of one of its medical officers, without charge if they were unable to pay for themselves ⁽⁵⁾. The authorities noted that the Home provided "a valuable adjunct to the hospital" ⁽⁶⁾ and some 500 patients convalesced there each year (Table XXIV).

1. A society of ladies which collected and issued clothing to needy patients and also employed two biblewomen for the benefit of the patients. (Report of the Royal Infirmary Dorcas Society (1864) and North British Daily Mail, Dec. 2 1865.
2. Deed of Constitution of the Glasgow Convalescent Home (n.d.).
3. Another home with which Miss Clugston was associated.
4. 78th Ann. Rep. Royal (1872).
5. Rules for the Constitution and Bye-laws of the Glasgow Convalescent Home (1865).
6. 79th Ann. Rep. Royal (1873).

Table XXIV (1)

Annual Averages of Royal Infirmary Convalescent Patients.

Year	Glasgow Convalescent Home, Lenzie	Schaw Home	
1875-9	553		
1880-9	533		
1891-1900	527	1896-1900	886
1900-10	535	1901-1905	1116

By the early 1890's it was felt that the Infirmary required a convalescent home of its own where patients who required some nursing (which was not provided at Lenzie) could be sent. The gift of £40,000 by a Miss Schaw to build such a home was therefore most welcome (2). The Schaw Home in Bearsden opened in August 1895 and by the end of the decade over 800 patients were convalescing there each year in addition to those who were sent to Lenzie (Table XXIV). The new Home not only helped patients to recover by enabling them to convalesce in the country but it also allowed the hospital beds they had occupied to be used for new cases thus reducing the length of patient stay (3). The average length of stay of medical patients fell from 36.4 days in 1896 to 29 days in 1905 and for surgical patients from 31 to 24 days (Table XX).

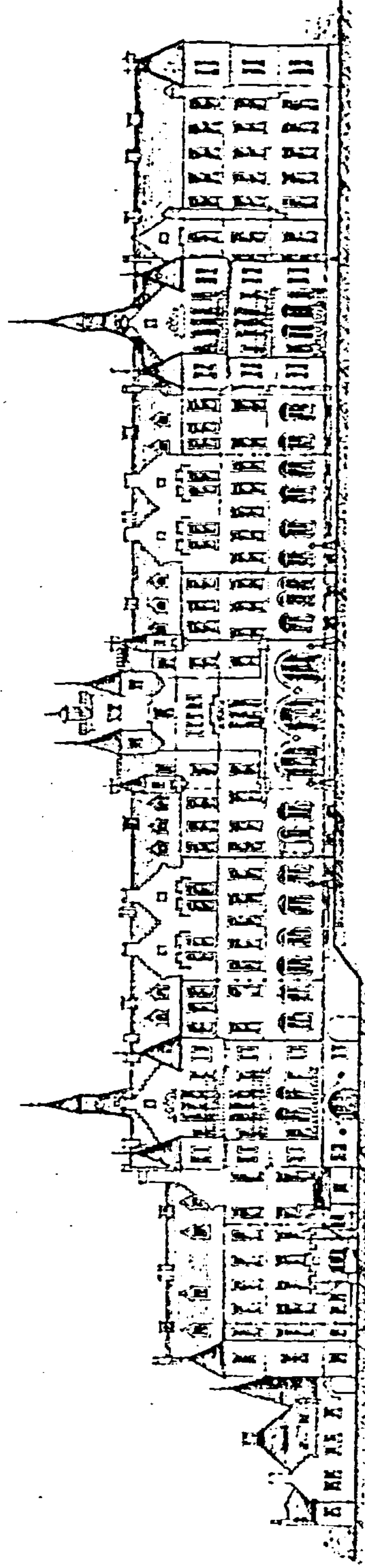
In the years 1866-88 more than twice as many of the convalescents at the Glasgow Convalescent Home were medical rather than surgical patients; the surgical cases were those recovering from operations and injuries; the medical patients were mainly cases of rheumatism, general debility, and "it would seem inevitably, many examples of

1. Source, Ann. Reps. Royal.
2. 97th Ann. Rep. Royal (1891).
3. 102nd Ann. Rep. Royal (1896). From 1875 the Glasgow Convalescent Home assigned 30 of its beds to the Royal Infirmary, eight to the Western, and the remainder to those of the general public with subscribers' lines, 11th Ann. Rep. of the Managers of the Glasgow Convalescent Home, for 1875.

pulmonary disease, the improvement of which in the Home has not always been obtained, especially in the season of winter" (1). Many were cases of consumption, "sometimes at a stage too far advanced for any permanent benefit from the treatment in the Home" (2). The medical officers of the home were constantly reminding those sending the patients, "of the uselessness of sending patients whose diseases are of an advanced or wasting nature" (3). This suggests that some medical cases discharged from the Infirmary (particularly consumptive patients) were by no means recovered and had probably not benefited overmuch from hospital treatment.

1. 21st Ann. Rep. Glasg. Conval. Ho. (1885).
2. 15th Ann. Rep. Glasg. Conval. Ho. (1869).
3. 22nd Ann. Rep. Glasg. Conval. Ho. (1886).

WESTERN INFIRMARY, GLASGOW.



ELEVATION TO DUMBARTON ROAD.



JOHN BURNET, SON, & CAMPBELL,
ARCHITECTS,
187, St. Vincent Street,
GLASGOW, May, 1881.

(v) The Western Infirmary

The problems faced by the new Western Infirmary were not the same as those that had confronted the Royal. The Western Infirmary was not built until the 1870's by which time the municipal authorities had assumed the responsibility of dealing with cases of fever. It was built after the introduction of antiseptics and so escaped the problem of hospital diseases and after the reform of nursing and so it never had the problem of the old Sarah Gamp type of nurse that the Royal Infirmary had suffered (1). The Western did face problems, however; the main one was dealing with the heavy demands made on the hospital by the growing population in the western districts of the city.

The university had been obliged to move from its old site in the High Street because, by the 1850's, the area round the Old College had degenerated into overcrowded slums and it had become clear that the university and its medical school would have to find a more salubrious site. In 1846 the Glasgow, Airdrie and Monkland Junction Railway Co. had obtained parliamentary powers to acquire the university site in the High Street and in exchange it was to build a new college at Woodlands and contribute to the cost of a new teaching hospital to be built close to the proposed university site. In the financial crisis of 1849 this project was abandoned (2). The old university was eventually sold to the City of Glasgow Union Railway Co. in the 1860's and a site to the west of the city at Gilmorehill was acquired for the university with the adjoining land at Donaldshill for the new hospital. The Government had agreed to make a substantial grant to the university on condition that the £24,000 required for the new hospital was raised by public subscription (3).

1. See above, p.116 ff.

2. J.D. Mackie, The University of Glasgow (Glasgow, 1956), p.281.

3. J. Coutts, A History of Glasgow University (Glasgow, 1909), p.443.

The Western Infirmary opened in November 1874 in buildings designed by John Burnet with wards built in pavilion blocks to ensure the cross-ventilation then thought to be essential in a modern hospital ⁽¹⁾. In order to ensure that local residents were aware of the existence of the new hospital a temporary dispensary had already opened in January ⁽²⁾. The hospital was built to provide facilities for medical teaching and "to serve all the purposes of a public sick hospital for the poor in the western district of Glasgow" ⁽³⁾, a district containing the shipyards of Partick as well as the mixed industrial areas of Anderston, Springburn, and Maryhill, and the middle-class western suburbs. At first only 190 beds were provided in the hospital ⁽⁴⁾, but the demand for hospital care was growing and as early as 1878 the managers were apologising that non-emergency ^{cases} could not be admitted immediately. Fortunately a generous bequest enabled them to extend the infirmary buildings ⁽⁵⁾. The new block was opened in June 1881 and, with the erysipelas wards which were opened in 1883, provided accommodation for 400 patients. Despite a reduction in the length of in-patients stay, however (see below), the Infirmary could still not meet the demand for in-patient hospital care. There was an increasing number of cases awaiting admission; in 1885 and 1886 between 40 and 50 patients with subscribers' lines were waiting for a bed in the hospital ⁽⁶⁾ and in 1903 there were some 300 patients, mostly surgical cases, on the waiting list and it was clear that "as the years go by

1. J. Christie, The Medical Institutions of Glasgow (Glasgow, 1888), p.59.
2. 2nd Ann. Rep. W.I.G. (1874).
3. 75th Ann. Rep. Royal (1869).
4. Christie (1888), op.cit. p.56.
5. 4th Ann. Rep. W.I.G. (1878).
6. See Appendix VI table of applicants with subscribers' lines waiting for admission.

and industrial occupations extend westwards, the number of urgent cases requiring immediate treatment will inevitably increase, necessitating either the erection and equipment of an additional Hospital for the district, or the extension of the Western Infirmary" (1).

A new wing accommodating 70 patients was therefore added to the building in 1906 but there were still some 400 cases on average awaiting admission (2).

The Western, like the Royal Infirmary, made use of convalescent beds at the home in Lenzie (the Directors of the home provided the Infirmary's Samaritan Society with lines of admission for suitable cases (3)) and patients were also sent to the convalescent home at Dunoon (4). In spite of this many convalescent patients continued to be treated at the Infirmary when they no longer required expensive medical care, occupying beds "to which another urgently in need of medical and surgical treatment might be admitted" (5). The gift of a convalescent home at Lanark from Sir William Hozier, the Lady Hozier House which was opened in 1893, was therefore particularly welcome (6). The early discharge of patients while they were still weak had long been a matter of concern. "Especially has this been the case with the working men who are bread-winners of families", it was noted. "Though cured so far as medical treatment is concerned, the fear is that many patients are hurried back to work prematurely, thus provoking relapse or producing permanently enfeebled health".

1. 28th Ann. Rep. W.I.G. (1902).
2. 32nd Ann. Rep. W.I.G. (1906).
3. 5th Ann. Rep. W.I.G. (1879).
4. 14th Ann. Rep. W.I.G. (1888).
5. 15th Ann. Rep. W.I.G. (1889).
6. MacQueen & Kerr, op.cit. p.16.

The Convalescent Home made it possible to reduce the length of patient stay in the Infirmary besides affording "patients change of air, nourishing food, and such a period to regain strength as will enable them to return to their duties in an assured condition of convalescence" (1).

Between 1894 and the end of the century the home was taking 688 patients a year on average and in the first ten years of the new century some 800 a year. At the same time some 180 patients a year were admitted to the Glasgow Convalescent Home at Lenzie.

One of the consequences of this was a sharp decline in the average length of in-patient stay in the Infirmary; a fall that was particularly marked among medical patients, as Table XXV shows.

Table XXV (2)

Average length of patient stay (in days).

Year	All patients	Medical patients	Surgical patients
1877-80	36.5	42.7	31.7
1881-5	37	41.2	33.3
1886-90	36.8	41.6	32.6
1891-5	33.8	36.5	31.2
1896-1900	30.7	35.2	27.8
1901-10	25.5	-	-

This does not mirror the experience at the Royal Infirmary where length of stay of medical patients did not fall (Table XX) but the average

1. 17th Ann. Rep. W.I.G. (1891), and see Glasgow Herald, 17 July 1893.
2. Source, Ann. Reps. W.I.G.

Table XXVI
(1)

Average number of patients discharged classified as:

Year	Cured		Relieved		Incapable of further benefit		Well		Greatly Improved		Other Grounds		Improved		Died		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1875-9	913	53.9	392	23.1	236	13.9	-	-	-	-	-	-	-	-	150	8.8	1692	99
1881-9	-	-	747	21.9	-	-	1159	34.	649	19.0	567	16.6	-	-	283	8.3	3406	99
1891-1900	-	-	-	-	-	-	1991	49.4	468	11.6	568	14.1	641	15.9	358	8.8	4027	99
1901-9	-	-	-	-	-	-	3650	56.6	380	5.9	1154	17.9	735	11.4	519	8.0	6439	99

1. Source, Ann. Repts. W.I.G.

length of medical patient stay was initially much higher at the Western and despite the decline it remained higher throughout the period. The decline in surgical patient stay at the Western mirrored the experience of the Royal.

The total number of patients treated at the Western rose three and a half times between 1875-9 and 1900-10 (Table XXVI).

As at the Royal the classification of the condition of patients on discharge changed over the period and so it is difficult to judge from the arbitrary classification whether more patients were benefiting from treatment by the new century ⁽¹⁾. In spite of the increased number of patients treated in the hospital, the reduction in the length of in-patient stay and the undoubted pressure on hospital beds (as evidenced by the lengthening waiting list) in-patient mortality rates remained remarkably steady (Table XXVII) and were significantly below that at the Royal (Tables XIX and XII).

Table XXVII (2)

Average annual mortality in the wards of the Western Infirmary.

Year	Medical patients	Mortality	Surgical patients	Mortality	All patients	Mortality
1875-9	727	13.7%	964	5.2%	1692	8.9%
1880-9	1541	11.6%	1728	5.3%	3271	8.2%
1890-9	1698	11.2%	2246	6.9%	3944	8.7%
1900-9	1670	12.4%	4352	6.6%	6022	8.2%

Medical mortality rates at the two infirmaries were very similar (Tables XIX and XXVIII) but mortality of surgical patients was significantly lower at the Western Infirmary, which no doubt accounts for the lower general mortality rate.

1. See above, p. 115.

2. Source, Ann. Repts. W.I.G.

Table XXVIII (1)

Operations and mortality at the Western Infirmary
(average annual)

Year	Operations	Mortality
1877-9	474	3.8%
1880-4	684	5.0%
1885-9	879	3.9%
1890-4	896	6.1%
1895-9	1653	5.2%
1900-4	2753	4.4%
1905-9	3215	5.7%

The reason why surgical mortality was lower at the Western than at the Royal Infirmary was that post-operative mortality was lower (Tables XXVIII and XXI). Hospital diseases were not a problem at the Western, which is perhaps not surprising in a modern hospital where antiseptic and aseptic techniques were in use from an early stage. Erysipelas was an exception; the fact that a special erysipelas isolation block was built for cases that developed post-operatively or after injury indicates that the disease was sometimes a post-operative complication at the Western (2). In 1892 William McEwen moved to the Western from the Royal and it was at the Western that he perfected the technique of aseptic surgery which he had pioneered. It was probably the influence of such a perfectionist as McEwen (3) together with the infinitely better physical conditions that existed at the new Western that explain why mortality rates were lower at the Western than at the Royal Infirmary.

From the beginning as a matter of policy no patients with infectious diseases were admitted to the Infirmary (4); the managers

1. Source, Ann. Reps. W.I.G.

2. 9th Ann. Rep. W.I.G. (1883).

3. Bowman, op.cit. p.69.

4. Disposition of the Principal and Professors, op.cit., presumably because there was already a municipal fever hospital.

arranged with the municipal authorities that infectious patients were admitted to the Belvidere and Parliamentary Road Hospitals on the recommendation of Infirmary subscribers ⁽¹⁾. The Western Infirmary never, therefore, had to deal with epidemics of fever as the Royal had done in earlier years and could concentrate from the start on the treatment of acute medical and surgical patients. As at the Royal an increasing proportion of patients were surgical rather than medical (see Table XXVII). The number of surgical cases treated each year increased five fold between the 1870's and the 1900's and the number of operations performed also increased markedly; medical cases, on the other hand, increased less than two and a half times. As a result, by the turn of the century the Infirmary was treating twice as many surgical as medical patients. In 1897 some medical beds were assigned to surgical cases to relieve the surgical waiting list, a new burns unit was opened which also released some surgical beds ⁽²⁾, and in 1898 three new operating theatres were opened ⁽³⁾. It was, therefore increasingly surgical rather than medical patients who were benefiting from the work of the Western Infirmary as they were at the Royal.

Of medical cases treated at the Western Infirmary (as at the Royal) the number with pulmonary tuberculosis admitted each year actually fell, although the number of cases of other pulmonary diseases did rise (Table XXIX).

1. 1st Ann. Rep. W.I.G. (1875).
2. 23rd Ann. Rep. W.I.G. (1897).
3. 24th Ann. Rep. W.I.G. (1898).

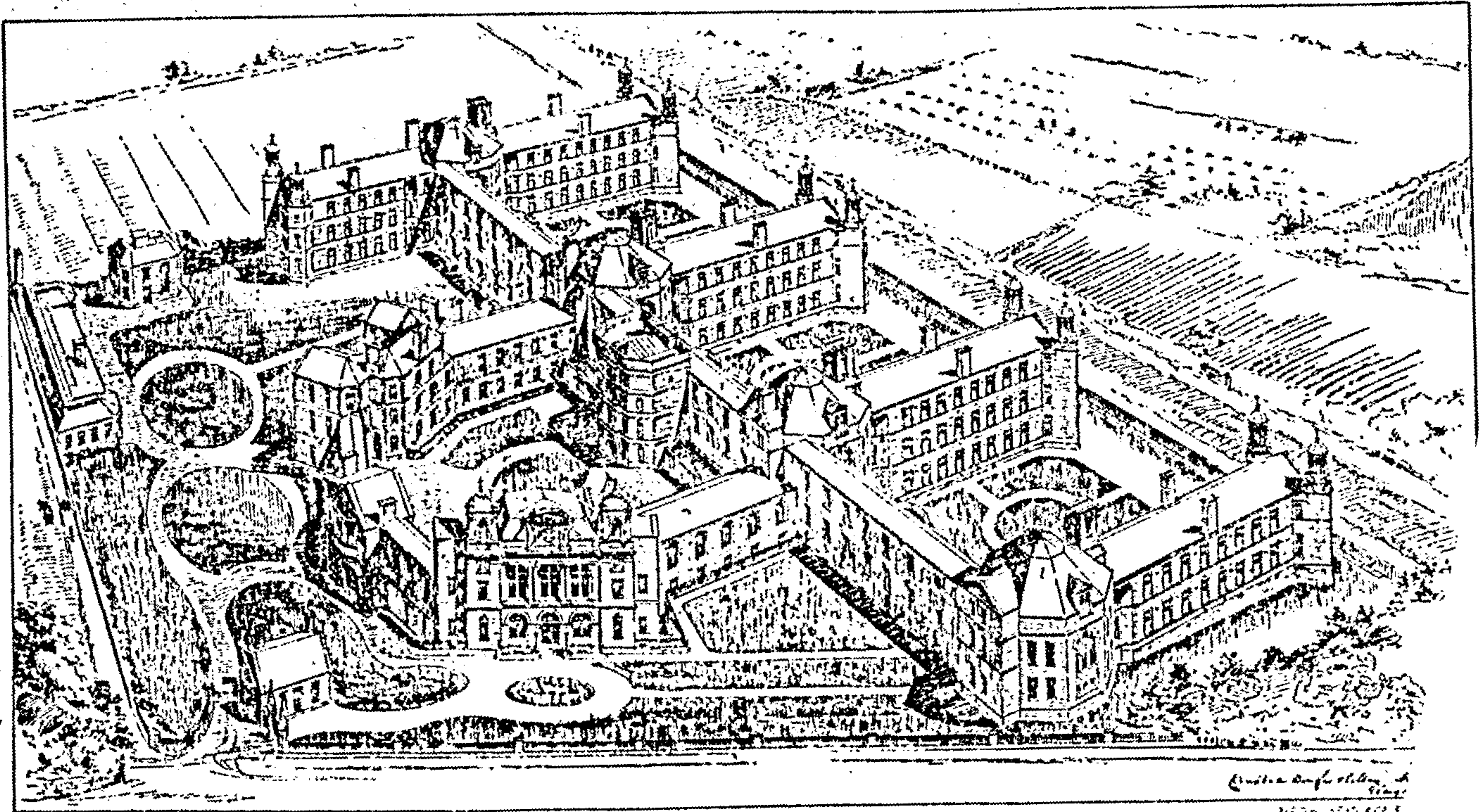
Table XXIX (1)

Average annual number of cases of pulmonary T.B. and of other pulmonary diseases treated in the Western Infirmary.

Year	Cases pulmonary T.B.	Cases other pulmonary diseases
1896-1900	95	208
1901-5	60	262
1906-10	42	340

But these patients constituted only a very small proportion of cases of these conditions in Glasgow ⁽²⁾. Moreover, as the Western Infirmary, like the other voluntary hospitals in the city, took patients from all over the West of Scotland as well as from Glasgow and its suburbs ⁽³⁾, some of these cases may well have come from outside Glasgow ⁽⁴⁾.

1. Source, Ann. Reps. W.I.G. data are only from 1896, the first year in which these details are given.
2. See below, pp.369-80.
3. And some of the suburbs lay outwith the municipal boundary.
4. In 1900, for example, 3,413 of the total 4,850 in-patients came from Glasgow and suburbs, and of those from outside the city some came from as far away as Elgin, Inverness and Perth.



THE VICTORIA INFIRMARY OF GLASGOW.

(vi) The Victoria Infirmary

The Victoria Infirmary was not opened until 1890 and it becomes clear from the efforts made to get a hospital built on the south side of Glasgow that the city was relatively poorly provided with voluntary hospitals. Once opened the hospital soon demonstrated that it was fulfilling a long felt need. Like the Western, the Victoria Infirmary was established when hospital diseases were a thing of the past and it too never provided treatment for infectious diseases. Again, as at the other two infirmaries, most of the patients were surgical rather than medical cases.

As early as 1866 the Glasgow Southern Medical Society had heard a paper from Dr. Rice which showed that Glasgow's voluntary hospital bed provision was equal to that of Edinburgh, Liverpool, or Manchester but less than London or Dublin ⁽¹⁾. Rice pointed out that the south side lacked a hospital and that the need for one would grow as population and industry developed. Twelve years later in 1878 the Glasgow Southern Medical Society heard another paper on the matter, from Dr. Ebenezer Duncan who discussed hospital accommodation in Glasgow and concluded that it was, "not nearly so great in proportion as the hospital accommodation of other large towns, and for some years it has not been sufficient to meet the wants of the community" ⁽²⁾. As he pointed out, in the period 18 February 1877 to 10 March 1878 applicants for admission to the Western Infirmary exceeded the available accommodation in all but four weeks of the period. In that winter the overcrowding of the city's two

1. J. Dougall, Historical Sketch of the Glasgow Southern Medical Society (Glasgow, 1888), p.31.
2. E. Duncan, "A Plan for an Hospital on the South Side of Glasgow", read to the Glasgow Southern Medical Society (Glasgow, 1878).

infirmaries was so great that their directors sent a deputation to the city authorities requesting assistance as 150 "of the sick and suffering poor were unable to get admission". The city authorities arranged that the municipal hospital in Parliamentary Road should be opened temporarily and staffed by the Royal Infirmary; in the period up to July some 120 patients were treated there ⁽¹⁾. This seasonal increase in demand for hospital care was presumably for the respiratory conditions which always increase in winter.

A provisional committee was therefore set up to promote the scheme for a south side hospital, a public meeting was held in 1881 and the Corporation of Glasgow was approached for a grant of land as a site for the hospital. The Corporation obliged and provided a site on the edge of Queen's Park at a reduced cost ⁽²⁾. The scheme lapsed for a time (for a reason that is unclear) but again in 1887 the Town Council was memorialized by the executive committee of the proposed infirmary which argued that the need for a third infirmary in the city was now more urgent than hitherto and citing the number of applicants with subscribers' lines (of which there were on average 71 and 83 in the first six months of 1885 and 1886 respectively and 25 and 21 in the last six months of these years) who were waiting for admission to the two infirmaries ⁽³⁾.

A public meeting was held at the Merchant's Hall on 31st April 1887 to promote the infirmary at which former Lord Provost John Ure argued that a city like Glasgow, where a great proportion of the

1. 84th Ann. Rep. Royal (1878).
2. G.C.A. DTC 14/1/16, Minutes of Town Council and Committees as to the Proposed Southern Infirmary.
3. Memorial of the Executive Committee of the Proposed Glasgow Infirmary (Glasgow, 1887), and see Appendix VI.

population was working class, required more hospital accommodation than a city like Edinburgh where the population was wealthier; yet Edinburgh and its suburbs had one hospital bed per 400 of its population whilst Glasgow had only one bed to each 700 of its population. In addition Glasgow had to provide, "for the immense industrial population of Lanarkshire, engaged as they principally were in the highly dangerous employments of mining and iron working". Ure estimated that the two Glasgow infirmaries served a population of a million and that much of this population, particularly those who lived in Glasgow, lived in one or two apartment houses and their need for hospital accommodation in times of sickness was particularly acute. He believed "that if the poor people had the attention in sickness which was bestowed on other communities we would soon see the effect in a diminished death rate", and the city would save in poor rates much of the cost entailed in providing more hospital accommodation ⁽¹⁾. In a letter to the meeting Dr. J.B. Russell produced a slightly different estimate of Glasgow's hospital provision. He argued that the population of the city and its nine neighbouring police burghs was 685,472 which meant that Glasgow had a ratio of hospital beds (excluding fever beds) of 1:533; while Edinburgh had a ratio of one bed to 286 of her population. In addition Glasgow hospitals had to serve much of Lanarkshire which, with a population of 300,000 had only the little Lockhart Hospital at Lanark ⁽²⁾. Thus it is clear (from which ever estimate is used) that Glasgow had relatively less hospital accommodation than Edinburgh at this time ⁽³⁾.

1. Glasgow Herald, 1 March 1887.

2. The Victoria Infirmary of Glasgow (1887).

3. Unlike the situation in 1866, see above, p. 129.

The campaign for a third infirmary was opposed by the other two infirmaries because it was believed that a third hospital in the city would increase competition for funds. Nevertheless the south side obviously needed a hospital. As the North British Daily Mail noted it was not an ideal arrangement that a man injured in the neighbourhood of Rutherglen Road had to be taken all the way across the river to the Royal Infirmary or that a man injured in Govan had his sufferings prolonged by a ferry crossing on the way to the Western Infirmary ⁽¹⁾.

The plan for the new infirmary was the subject of a competition ⁽²⁾ and the hospital, now called the Victoria Infirmary to mark the Queen's Jubilee, was opened in 1890 with three large wards that accommodated 80 patients ⁽³⁾ and there was also provision for some private patients ⁽⁴⁾. The wards were almost immediately fully occupied but a handsome donation to the building fund enabled an additional pavilion with 70 beds and a new nurses' home to be started in the following year ⁽⁵⁾, giving a total of 150 beds. Demands on the hospital continued to grow, however, and a bequest in 1897 enabled the Infirmary to acquire a convalescent home at Largs which could take 24 convalescents at a time thus relieving hospital beds. This did not result in a marked fall in the length of patient stay; patients were in the Infirmary for an average of 30 days in 1894 and 29 days in 1910. Even with the extension to the hospital and the new isolation block which was started in 1899 ⁽⁶⁾ there was still a shortage of hospital accommodation. In 1901 complaints were made that 75-100 patients were awaiting

1. March 3 1887.
2. Which was judged by the City Architect and Dr. J.B. Russell.
3. 3rd Ann. Rep. Vict. (1890).
4. Constitution of the Victoria Infirmary, op.cit.
5. 3rd Ann. Rep. Vict., op.cit.
6. 12th Ann. Rep. Vict. (1899).

admission ⁽¹⁾. Accordingly in the following year the construction of an additional pavilion with wards for 80 patients was authorized. Clearly the third infirmary in Glasgow was fulfilling a very real demand.

The number of patients treated in the Victoria Infirmary had almost trebled by the early years of the twentieth century (Table XXX).

Table XXX (2)

Average annual numbers of patients treated in the Victoria Infirmary and average mortality rates.

Year	Total Patients	Mortality	Medical Mortality	Surgical Mortality	Operations	Mortality
1890-5	1117	8.6%	9.9%	7.4%	377	5.4%
1896-1900	1589	8.2%	-	-	668	5.2%
1901-5	1840	10.9%	-	-	928	7.7%
1906-10	2985	8.8%	-	-	1646	5.4%

Of these an increasing proportion were surgical cases; by the first decade of the new century there were often twice as many surgical as medical patients in the hospital (Table XXXI).

Table XXXI (3)

Average annual numbers of medical and surgical patients treated in the Victoria Infirmary.

Year	Medical Patients	Surgical Patients
1890-5	535	582
1896-1900	638	950
1901-5	611	1229
1906-10	1065	1920

Mortality rates were much the same as those at the Western Infirmary (Tables XXVII and XXVIII) and showed little significant change over

1. 14th Ann. Rep. Vict. (1901).
2. Source, Ann. Reps. Vict.
3. Source, Ann. Reps. Vict., no detailed data on deaths of medical and surgical patients are given after 1896.

the period, despite the increasing number of patients treated ⁽¹⁾. As at the other infirmaries medical mortality seems to have been higher than surgical (in the few years that this information is given). The infirmary did not admit patients with infectious or venereal diseases but it did treat a limited number of cases of pulmonary tuberculosis, some 40-50 cases each year in the period up to the First World War ⁽²⁾, a very small proportion of the total number of cases of the disease in the city. Of patients with other forms of respiratory diseases some 100 were treated each year up until 1905, thereafter between 150 and 200 were admitted annually. Again, the number of patients with these diseases who were treated in the Victoria Infirmary comprised only a very small proportion of the total number of cases occurring in the city. As at the other two infirmaries, the efforts of the Victoria Infirmary were directed not on providing treatment for the major causes of mortality but rather on surgical treatment and the treatment of medical conditions other than respiratory diseases.

1. There are no data on the condition of patients from the Victoria Infirmary on discharge.
2. See G.H.B. 9, Minutes Victoria Infirmary 1894-5, p.162, on applications for the admission of phthisis patients.

(vii) The (Royal) Hospital for Sick Children, Glasgow

It was not until the 1880's that a children's hospital was opened in Glasgow. This was a very small hospital which was quite inadequate for the needs of a city the size of Glasgow. The history of the hospital in the late nineteenth and early twentieth centuries reveals the efforts made to extend and augment its limited resources and eventually a new, much larger hospital was built. The number of in-patients that could be treated in a very small hospital was obviously very limited.

The founding of a hospital for sick children in Glasgow occurred later than the establishment of similar hospitals in many other cities. The Hospital for Sick Children in Great Ormond Street in London had been set up by Dr. Charles West, a pioneer of British paediatrics, in 1852 ⁽¹⁾ and children's hospitals had been opened in Edinburgh in 1860 and in Aberdeen in 1876 ⁽²⁾. A hospital for sick children was first canvassed in Glasgow in 1861 but the project was dropped at this time because "of the commercial crisis then existing which it was thought would render it difficult to raise sufficient funds" ⁽³⁾. The project was revived four years later. At this time sick children were admitted to the wards of the Royal Infirmary and the Infirmary authorities regarded the proposed children's hospital as a potential competitor for charitable funds ⁽⁴⁾. The Glasgow Herald supported the Royal Infirmary in this matter, condemning children's hospitals as "pet schemes for benevolent

1. Singer and Underwood, op.cit. p.657.

2. Comrie, op.cit. pp. 454 & 463.

3. Letter from Dr. G.H.B. McLeod, quoted in the North British Daily Mail Feb. 10 1866, and see G.H.B. 7/1/2 Minutes Royal Hospital for Sick Children, p.4.

4. Robertson, op.cit. pp.17-19.

ladies" (1), while the North British Daily Mail argued the case for a children's hospital with facilities to deal with the special needs of children, particularly children under five years who were the very children the Infirmary was reluctant to admit (2). A distinguished advocate of the proposed hospital was Dr. Charles West who pointed out in a letter to the North British Daily Mail (3) that the Royal Infirmary was admitting few children under ten years (4) and of those they did admit most had typhus fever. The Infirmary was therefore treating very few children suffering from the diseases of childhood and it was to treat these diseases that a children's hospital was required.

Interest in the project declined to be revived again at the time of the University's move to Gilmorehill when it was suggested that a children's hospital should be built close by the Western Infirmary. This plan foundered over the matter of a suitable site (5). By now it was widely agreed that a special hospital for children was needed in an industrial city like Glasgow to combat the high child mortality. The lack of medical treatment for children was clearly demonstrated by the large number of children's deaths which were not certified by a doctor (6).

1. Quoted, North British Daily Mail, 9 Feb. 1866. The paper commented on the Glasgow Herald's opposition to the children's hospital, "the financial statements of our charities prove that the conjoined command to love one's neighbour as one's self is at a sad discount amongst us. It may be a noble thing to raise palatial churches and to promote glorious emulation (in expenditure) between sects whose gravest differences hardly exceed that about which the Lilliputians and the Blefuscans fought, but the practical Christian would rather worship in a barn than bestow his wealth on vanities, while there remains a hungry man to feed or a naked one to clothe".
2. *ibid.*
3. *ibid.*, April 2 1866.
4. Only 326 in 1864.
5. Glasgow Weekly Herald 29 Oct. 1870 and see G.H.B. 7/1/2 p.84.
6. Russell, Report upon Uncertified Deaths, *loc.cit.* and see "A plea for hospitals for sick children", anon. Sanitary Journal VI (1882), 213-6.

The committee promoting the children's hospital eventually decided to go ahead independently and in 1880 bought and equipped a house at Garnethill as a hospital for the treatment of children aged between two and twelve years ⁽¹⁾. The first patient was admitted in January 1883. The hospital relied on an honorary staff of physicians and surgeons and was financed by voluntary subscriptions and contributions. A Mrs. Louisa Harbin who had worked in the Hospital for Sick Children at Great Ormond Street was appointed as matron ⁽²⁾.

The demands on the hospital soon grew and by 1887 there were up to fifty cases waiting for admission. The adjoining house was therefore acquired in which an operating theatre and a medical ward were provided. The hospital now had 70 cots, 32 medical and 38 surgical which, it was hoped, would deal with the demand for surgical treatment and also encourage the treatment of medical conditions, "which, as had been frequently pointed out, are the chief cause of that high mortality among Glasgow children which it was the main object of the promoters of the Institution to endeavour to reduce" ⁽³⁾.

In 1893 a new wing was added ⁽⁴⁾ which meant that the hospital now had 74 cots in general wards and six for isolation cases ⁽⁵⁾. Nevertheless, the hospital was really much too small for a city the size of Glasgow. Various voluntary convalescent homes were used to relieve the pressure on hospital facilities and by 1889 97 children were being sent away to

1. In special cases children under two years might be admitted but no cases of infectious disease would be. 1st Annual Report of the Glasgow Hospital for Sick Children (1883).
2. G.H.B. 7/1/2 p.141-2. Her salary was £80 p.a. + board, lodging, and laundry expenses. She had charge of the general management of the hospital and superintended the nurses and servants.
3. 5th Ann. Rep. Glasg. Hosp. (1887).
4. 11th Ann. Rep. Glasg. Hosp. (1893).
5. 12th Ann. Rep. Glasg. Hosp. (1894).

convalesce and the Ladies Auxiliary had accepted the offer of a cottage at Garelohead for the winter months from the "Fresh Air Fortnight Scheme" for use as a temporary convalescent home for post-operative and other patients who could not be sent to other homes. "In this way the beds at the Hospital are left free for the most urgent cases", it was noted ⁽¹⁾. The hospital directors believed that a convalescent home managed by the hospital would be useful, providing the "invaluable resource of fresh air and exercise as an aid to the recovery of city children and also as a recruiting place for the nurses and sisters" ⁽²⁾.

This wish was granted in 1890 when the hospital was given a convalescent home at Eaglesham for ten children by the Trinity Congregational Church ⁽³⁾. By now some 140 children were being sent to convalescent homes each year and this number had increased to 342 in 1900.

The pressure on the hospital continued however; in 1900 some 80 patients were awaiting admission. The hospital directors were therefore pleased to accept the offer of a country branch for the hospital, "to which those children, who, in present circumstances, occupy beds in the Hospital and yet do not require much active treatment, could be transferred", in addition, "the change to the country will be beneficial to the more lingering class of cases" ⁽⁴⁾.

The country branch near Drumchapel station was completed early in 1903 and its 26 cots proved to be most useful, particularly for long-term cases ⁽⁵⁾.

1. 7th Ann. Rep. Glasg. Hosp. (1889).
2. 6th Ann. Rep. Glasg. Hosp. (1888).
3. 8th Ann. Rep. Glasg. Hosp. (1890).
4. 18th Ann. Rep. Glasg. Hosp. (1900).
5. 20th Ann. Rep. Glasg. Hosp. (1902).

Despite these efforts to stretch the hospital's limited accommodation, the demand for hospital treatment still outstripped the resources that were available. This growing demand was in part due to improvements in surgical technique which accounts for the increasing number of children under two years, or even under one year, who were admitted to the hospital (1). The main reason, however, was the large and growing population that the hospital served. The 74 beds of the only children's hospital in the region served all of Western Scotland; Edinburgh and Aberdeen with much smaller populations had children's hospitals with 120 and 85 beds respectively (2), and many large English towns were better provided for than Glasgow. It had become clear that more beds would have to be provided but the site at Garnethill was too cramped for expansion. The Yorkhill estate was therefore acquired and a new hospital was still under construction in 1912 and was not in use as a children's hospital until after the First World War.

The total number of children treated each year was not large (Table XXXII) and was only a small proportion of the total number of sick children in the city (3).

Table XXXII (4)

Average annual numbers of patients discharged classified as:

Year	Total	% of total patients				Medical		Surgical	
		Cured	Improved	Unimproved	Died	No.	%	No.	%
1886-90	514	53.6	23.3	14.3	8.3	274	11.0	238	5.2
1891-5	580	48.9	23.1	15.5	12.2	339	15.1	241	8.1
1896-1900	719	47.9	23.0	16.8	11.8	389	16.3	329	6.7
1901-5	924	45.9	23.8	15.5	14.4	435	18.9	489	10.4

1. Before 1890 only some 2% of admissions were of children under one year, this proportion had increased to 20% in 1912.
2. 20th Ann. Rep. Glasg. Hosp. op.cit.
3. See below, pp.150-1.
4. Source, Ann. Reps. Glasg. Hosp.

As Table XXXII shows the relative number of those said to have been "cured", "improved", or "unimproved" on discharge from hospital remained almost unchanged throughout the period. The proportion of medical and surgical patients treated stayed much the same with roughly equal numbers of surgical and medical cases being admitted each year. Mortality of both medical and surgical patients rose, probably because of the increasing number of very young children that were being treated and also because more complex surgery was being performed. As only a relatively small number of children were treated each year and there was no improvement in mortality rates the effect of the hospital on child mortality in the city can only have been very small.

(viii) The effectiveness of voluntary hospital treatment

For much of the nineteenth and early twentieth centuries, as detailed histories of the hospitals (particularly the Royal Infirmary) have shown, the hospitals were faced by serious problems which seriously hampered their work, viz. the problem of fever, hospital diseases, inadequate and overcrowded buildings, untrained nurses, a very limited number of successful surgical and medical techniques, and many patients awaiting admission for treatment. It took time and much effort to tackle these problems.

Glasgow's voluntary hospitals were founded at a time when the city's population was increasing, at times very rapidly. With the rapid urbanization of the first three quarters of the nineteenth century came the diseases associated with poverty and overcrowding, with inadequate sewerage, grossly overcrowded, miserable housing, and large scale immigration from the Highlands and, particularly in the 1840's, from famine-stricken Ireland. The Royal Infirmary, founded to treat the ill and injuries of the sick poor, found itself dealing with the victims of epidemic fevers which periodically swept through "the low wynds and dirty narrow streets and courts, in which, because lodging was there cheapest, the poorest and most destitute naturally had their abodes" (1). From its foundation the Infirmary had to deal with fever epidemics and by the 1830's, '40's, and '50's up to half of total patients treated each year were fever cases (2). Hospital diseases were another problem that plagued the Infirmary in the first half of the nineteenth century and so were the difficulties caused by untrained, unsuitable nurses.

1. N. Arnott, "Report on the fevers which have prevailed in Edinburgh and Glasgow", Rep. San. Comm. (P.P. 1842, XXVI), p.8.
2. See above, Table XVII.

There was considerable pressure on the hospital accommodation available at the Royal Infirmary, particularly before 1874 when it was the only general hospital in the city. Even when the municipal fever hospitals had taken over responsibility for treating fever there was still a shortage of general hospital beds in Glasgow, for the voluntary hospitals of the city served not only the rapidly growing population of Glasgow itself, but also a large surrounding area ⁽¹⁾. The building of each new infirmary was preceded by years of overcrowding in the existing hospitals. The ratio of hospital beds to population did not rise for very long even when the two infirmaries opened which indicates that hospital bed provision in the Glasgow voluntary hospitals was merely keeping up with population growth ⁽²⁾. Even at the end of the period, after the new infirmaries and children's hospital had been opened, there was still pressure on the hospitals and a new, much larger Royal Hospital for Sick Children was under construction at Yorkhill while the Royal Infirmary was being completely rebuilt and enlarged.

By the end of the period fever epidemics were no longer so common nor so virulent. All fever cases were treated in the municipal fever hospitals ⁽³⁾, and the Royal Infirmary no longer admitted cases of infectious disease (the other infirmaries did not admit infectious cases at all). With the introduction of antiseptics and asepsis (both pioneered in Glasgow) the hospital diseases that had plagued the Royal Infirmary became a thing of the past; they were never such a problem in the new hospitals which were founded after the introduction of these new techniques and constructed on the pavilion plan advocated by Miss

1. See below, pp.146 for further discussion of this point.

2. See below, pp.144-6 for further discussion of this point.

3. See Chapter 7. . . .

Nightingale with wards in detached blocks ⁽¹⁾. The Sick Children's Hospital was located in converted houses until after the First World War but its cramped premises do not appear to have been subject to outbreaks of hospital infection.

With the introduction of new surgical techniques and the development of anaesthetics many more complex operations could be performed and there was an increase in both the number and relative proportion of surgical patients in all the hospitals ⁽²⁾. Hitherto the kind of operations that could be performed was limited, but it was now possible to perform even neurosurgery ⁽³⁾ and much more abdominal surgery (which had been previously largely confined to ovariectomies). In 1890 the first appendicectomy in Glasgow was carried out at the Victoria Infirmary and many other abdominal operations were developed ⁽⁴⁾. In the period under consideration Glasgow surgeons carried out a surprisingly large number of operations on bones and joints, treating conditions that were often the result of tuberculosis, or rickets; William McEwen, one of the greatest surgeons of the day, was noted for the osteotomy operation he developed to straighten bow legs. Pioneers of the new surgical techniques, men like Lister and McEwen, frequently found themselves at odds with the infirmary managers when they insisted on better conditions in wards and operating theatres. On the medical side of the infirmaries there was little advance in the effectiveness of treatments for the major cases of mortality in this period, for pulmonary tuberculosis and

1. Woodward, op.cit. p.114.

2. See below p. 147 and see E.M. Sigsworth, "Gateways to death? Medicine, hospitals and mortality, 1700-1850", in P. Mathias, ed. Science and Society 1600-1900 (Cambridge, 1970), p.109.

3. Of which William McEwen was a noted pioneer.

4. A.E. Maylard, Glasgow Infirmary (Glasgow, 1933), p.14.

acute chest conditions; this is reflected in the death rates of medical patients which remained consistently higher than surgical rates in all the hospitals ⁽¹⁾. The treatment of many medical patients was probably limited to the period allowed by one subscriber's line and they would then be discharged as "relieved" or "improved" or transferred to a poorhouse hospital.

As Table XXXIII shows, in spite of the building of the two infirmaries and the children's hospital the provision for voluntary hospital beds did not increase very significantly in the second half of the nineteenth century in relation to the city's population, to say nothing of that of the suburban and rural areas.

Table XXXIII (2)

Hospital beds in the Glasgow voluntary hospitals and population.

Year	Beds	Beds/1,000 Glasgow population
1850	420	
1851	360	1.09
1861	572	1.4
1862-6	680	
1866	542-7	1.2
1874	737	1.5
1881	947	1.8
1890	1097	1.9
1892	1167	1.7
1899	1177	1.6
1905	1214	1.6

1. There are no data on the relative ages of infirmary surgical and medical patients; obviously if medical were older than surgical patients they would tend to have higher mortality rates.
2. Calculated from data in Annual Reports of the Royal, Western and Victoria Infirmaries and the Sick Children's Hospital. Today it is calculated (1974) that there are 7,245 acute hospital beds in Greater Glasgow which had an estimated population of 1,129,387 in June 1974; 6.4 beds/1,000 population. Health in Brief, N.H.S. Statistics (Edinburgh, 1974).

The Royal Infirmary had from 542-7 beds from 1866 ⁽¹⁾ and the new Western and Victoria Infirmaries and the Sick Children's Hospital provided additional beds making a total of 1,214 in 1905. The number of voluntary hospital beds per thousand of population was 1.09 in 1851; 1.4 in 1861; 1.2 in 1866; 1.5 in 1874, with the opening of the new Western; 1.9 in 1890, with the opening of the Victoria Infirmary and the Sick Children's Hospital, and 1.6 in 1899 and 1905. Even so, in 1904 the Glasgow Herald reported that "Every week, and almost every day, the claimants for admission exceeded the number of beds that could be provided" ⁽²⁾ and that some 600 people were waiting to be admitted. It was to meet this demand that the complete reconstruction of the Royal Infirmary was undertaken; this began in 1905 and was still in progress five years later.

In 1887 Dr. Sutherland, the surgeon at Duke Street Prison in Glasgow, gave data on the relation of the supply of hospital beds to population in Glasgow and in other large cities:

Table XXXIV ⁽³⁾

Hospital beds in relation to population in certain cities in 1887.

	Hospitals	Beds	Population 1887	Beds/ Population
London	90	10,000	4,200,000	1/420
Glasgow & suburbs	9	1,273	750,000	1/590
Liverpool & Birkenhead	19	1,197	693,000	1/580
Manchester & Salford	12	957	600,000	1/620
Birmingham	8	624	440,000	1/700
Dublin	23	2,500	353,000	1/140
Leeds	3	336	345,000	1/1020
Edinburgh & Leith	8	1,018	318,000	1/312
Sheffield	6	380	316,000	1/830
Bradford	3	274	224,500	1/820

1. The Royal Infirmary with its new Surgical Hospital had 572 beds in the early 1860's and under pressure of demand this was increased to 680 (Christie, op.cit. p.56). An outbreak of hospital gangrene in 1866 led to a restriction of numbers to prevent infection.
2. Glasgow Herald, Nov. 26 1904.
3. J.F. Sutherland, "Breakdown of the present hospital system - the freedom of the hospital claimed", Glasgow Medical Journal, XXX (1888), 349.

Sutherland includes all hospitals, not just voluntary hospitals in his table, and his calculations suggest that Glasgow had about the same provision of hospital beds as Liverpool, was rather better provided for than Sheffield, Bradford, Leeds, and Birmingham but had not the relative provision that there was in Edinburgh, Liverpool, and Dublin.

Between 1868 and 1911 some 65-74% of the in-patients in the Royal Infirmary came from the city of Glasgow and at the Western Infirmary between 68-75% of the patients came from Glasgow and its suburbs (Table XXXV).

Table XXXV (1)

Residence of in-patients

	Western Infirmary (Percentage of patients from Glasgow and suburbs).	Royal Infirmary (Percentage of patients from city of Glasgow).
1870	-	69.6%
1875	-	67.4%
1880	-	72.5%
1885	-	72.1%
1890	-	66.3%
1895	75.1%	70.8%
1900	70.3%	73%
1905	68.5%	69.6%
1910	69.5%	68.4%

It is not entirely clear what the infirmaries considered to be Glasgow proper and Glasgow suburban. But what is clear is that not more than 70% of the in-patients of the two infirmaries came from the city of Glasgow. The ratio of hospital beds to the population of Glasgow is therefore rather misleading as a third of the patients came from outside the city and thus greatly overstates the adequacy of voluntary hospital provision.

1. Sources, Annual Reports of the Royal and W.I.G. There are no comparable data for the Victoria Infirmary.

Although the ratio of beds/population did not increase the number of in-patients treated each year in the three infirmaries grew significantly, both absolutely and as a percentage of the population of the city (Table XXXVI). This was possible, presumably, because of the reduction in the length of patient stay. There is no reason to suppose that this reduction would have had an adverse effect on patients.

Table XXXVI (1)

Number of in-patients treated annually in the Glasgow Infirmaries.

Year	No. patients	Medical	Surgical	Fever	Patients/1,000 Glasgow population
1855	3416				9.6
1860	3742				9.6
1865	6229	1697	2068	2464	14.5
1870	6247	1971	2334	1942	13.3
1874	6499	2923	3432	144	13.4
1879	7267	3386	3881	-	14.4
1885	8158	3675	4483	-	15.3
1891	9600	4120	5480	-	16.9
1895	11335	4772	6563	-	16.2
1900	12416	4409	8007	-	16.7
1905	15613	4797	10815	-	20.4
1910	20092	5860	14232	-	25.6

There was also an absolute as well as a relative increase in the number of surgical, as opposed to medical, patients which suggests that it was patients with surgical conditions who benefited most from the expansion of the Glasgow infirmaries (admittedly the division of diseases into surgical and medical conditions is often rather arbitrary; injuries are obviously surgical conditions but some other conditions such as tuberculosis of bones and joints might fall into either category depending on the treatment then considered appropriate). Another measure of the increase in surgery is the number of operations performed. This increased from under 200 in 1855 to over 12,000 in 1910 (Table XXXVII).

1. Sources, Ann. Reps. Royal, W.I.G. and Vict.

Table XXXVII (1)

Total operations performed in the three Glasgow infirmaries.

Year	Operations	Year	Operations
1855	198	1891	2362
1865	310	1895	3370
1870	470	1900	4531
1875	657	1905	7166
1879	1187	1910	12058
1885	1642		

As the Royal Infirmary stopped admitting cases of infectious disease in the 1870's and the other voluntary hospitals did not treat them at all the fall in mortality from such diseases as enteric fever, typhus, smallpox, measles, and scarlet fever after 1870 cannot have been due to anything that was being done in the voluntary hospitals. In the earlier years of the century, of course, the Royal Infirmary had made a considerable contribution to the treatment of fever and smallpox cases; over 80% of fever patients discharged from the hospital recovered ⁽²⁾ although only a small proportion of the total cases of fever in the city at this time were ever admitted to hospital.

The number of cases of consumption treated as in-patients in the infirmaries in the period actually fell, from 366 treated in the Royal Infirmary in 1880 ⁽³⁾ to a total of 135 cases treated in the three infirmaries in 1910 (Table XXXVIII).

1. Sources, Ann. Repts. Royal, W.I.G. and Vict.
2. See Table XVIII.
3. A similar number was probably treated at the Western in that year but no detailed breakdown of medical cases is given.

Table XXXVIII (1)

Cases of pulmonary T.B. and other respiratory diseases treated as in-patients in the three infirmaries.

Year	Pul.T.B.	Other resp.dis.	Year	Pul.T.B.	Other resp.dis.
1855	161	236	1890	282	418
1860	258	271	1896 ⁽²⁾	336	643
1865	299	243	1900	230	695
1874	274	511	1905	162	808
1880	366	506	1910	135	1112
1885	330	502			

This was at a time when deaths from pulmonary T.B. in Glasgow numbered 1,352 (in 1896) and some 1,200 annually in the first decade of the new century. As such a small proportion of cases were treated in the infirmaries the decline in mortality from this cause cannot have been due to hospital care. At the Royal (as at the other infirmaries) accident and operation cases were admitted in preference to cases "of a lingering or chronic nature" ⁽³⁾. The managers reminded subscribers that "the Infirmary is not a Hospital for chronic or incurable diseases" ⁽⁴⁾. But it was cases "of a lingering and chronic nature" like pulmonary T.B. and some chest infections that were the major causes of mortality in Glasgow. Even though there was an increase in the absolute number of cases of respiratory diseases treated in the three infirmaries (from 236 in 1855 to over 1,000 in 1910, as Table XXXVIII shows) this can hardly account for the very considerable fall in the death rate from these diseases. Deaths from this cause in Glasgow numbered 4,207 (in 1895) and between two and a half and three thousand annually in the first decade of the twentieth century. The death rate in Glasgow from non-tubercular respiratory diseases fell from 550-650 per 100,000 living

1. Sources, Ann. Reps. Vict., W.I.G. and Royal.
2. Only in 1896 are details given of the Western Infirmary's medical cases.
3. 54th Annual Rep. Royal, op.cit.
4. 68th Ann. Rep. Royal (1862).

in the decade 1861-70 to 360-420 deaths per thousand in the years 1901-10; this fall accounts for 20% of the overall decline in the death rate in this period (Table III).

As child mortality constituted such a significant proportion of total mortality in the nineteenth century the relationship between the voluntary hospitals and the decline in the mortality rate of Glasgow children in this period is obviously important. Children were treated in the Royal and Western Infirmaries as well as in the Sick Children's Hospital (Table XXXIX).

Of children treated in the infirmaries, as Dr. West had noted, far more were surgical than were medical cases, although it was medical conditions, particularly respiratory conditions, that were the major cause of child deaths. Moreover, the Children's Hospital was founded only in the 1880's and the Western Infirmary in the 1870's while mortality of children aged one to four years had been falling since the early 1870's. The death rate of children aged between one and four fell by over a half between 1861 and 1911 ⁽¹⁾, yet the number of children admitted to the Sick Children's Hospital of this age was only some 150 in 1885, some 200 in 1894, and 455 in 1912 ⁽²⁾. If the number of deaths of patients in the Children's Hospital is compared with the total number of deaths of children under ten years in the city ⁽³⁾ it is obvious that only a very small proportion of the sick and dying children of Glasgow were admitted to the hospital (Table XL). Clearly the treatment of children as hospital in-patients cannot account for the marked fall in child mortality.

1. See above, p.54.

2. The only hospital which gives detailed data on patients' ages.

3. The Registrar General does not give data on the mortality of children aged under 12 years, the age of children admitted to the Sick Children's Hospital.

Table XXXIX (1)

Number of children as in-patients in the Glasgow voluntary hospitals

<u>Royal</u>		<u>Western</u>		<u>Sick Children's Hospital</u>		
Year	No. Children	Year	No. Children (2)	Year	No. Children	
	Total Medical Surgical		Total Medical Surgical		Total Medical Surgical	
1860	127 (3)			1885	394	265
1865	881 (4)			1890	544	310
1870	495	97	398	1894	598	350
1875	510	125	385	1900	714	368
1880	764	126	638	1906	1104	522
1885	893			1912	1026	440
1890	853					
1895	1025					
1900	1078					
1905	1731					
1910	2003					

1. Sources, Ann. Repts. Royal, W.I.G. and Glasg. Hosp.; no details are given of the ages of patients at the Victoria Infirmary.
2. Under 12 years.
3. Under 10 years + 171 children in the fever wards.
4. Under 15 years.

Table XL (1)

Patients admitted to the Glasgow Hospital for Sick Children, deaths in hospital and deaths of children under ten in Glasgow.

Year	Patients	Deaths in hospital	Deaths under 10 years in Glasgow
1883	260	16	7321
1885	394	41	6753
1890	553	49	6309
1894	596	63	5850
1900	714	103	7085
1906	1075	165	5993
1910	997	140	5135
1912	1139	188	5089

One reason why such a relatively small number of patients suffering from common and often fatal respiratory conditions were treated in the wards of the Glasgow infirmaries was the way in which patients were selected for admission. Many surgical patients, particularly those with injuries, were admitted to the wards directly from the infirmary dispensaries without requiring a subscriber's "line". Although at the Royal the dispensary physicians could recommend some patients for admission to the wards this privilege was reserved for "very urgent cases"⁽²⁾, and most medical patients, who were less likely to be emergency cases, usually required a subscriber's "line" which was not always freely available. A sick man had to know or find a subscriber to get a "line"; John Ure reported that he had "had again and again the statement made to him by poor people of the weary trudging throughout the city in the quest of the necessary line". He went on, "Those who, from the

1. Sources, Ann. Repts. Glasgow Hosp. and Registrar General's Detailed Annual Reports.
2. The Medical Superintendent had to report each week on the number of patients admitted directly from the dispensary, Lamond, op.cit. p.10 and see G.H.B. 1/1/13, p.335 Feb. 1864, the dispensary physicians asked for and obtained the privilege of recommending a limited number of patients for admission to the wards, in exceptional cases.

smallness of their subscription were only entitled to send one patient, might be expected to reserve their privilege for someone whom they knew, so that the poor stranger was put to a great disadvantage ...", he knew that in many instances "the effort was given up in despair" (1). The Western Infirmary, like the Royal, did admit some urgent medical as well as accident cases without subscribers' lines (2) and at the Sick Children's Hospital, according to Dr. Finlayson, "the rule is to admit cases sent in by any medical practitioner, the house surgeon obtaining from some of the Directors the needful 'line'" (3).

Admission to the infirmaries was therefore often arbitrary as it was largely determined by the possession of a subscriber's "line". As Professor T. McCall Anderson noted "It is a shocking idea, that a poor creature who has no friends, and who may be the subject of a serious complaint, is liable to be rejected, while he whose circumstances are fair, and who perhaps has not much the matter with him"

but who had friends who could provide a subscriber's "line" would have preferential treatment (4). Of patients with the same common disease it would be the one with the "line" who would be admitted.

Another reason why few cases of the common respiratory diseases were admitted was that the medical staff were more concerned with interesting cases which could be used for teaching. As Dr. Sutherland remarked it was puzzling why certain diseases were more favoured than others

1. Glasgow Herald, March 1 1887.
2. Royal Commission on the Poor Laws and Relief of Distress (P.P. 1910, XLVI) 6013 & 6014, Appendix VI.
3. Quoted by J.F. Sutherland, op.cit. 354.
4. The Professor of Clinical Medicine at Glasgow University, letter to the Glasgow Medical Journal, XXVII (1887), 126.

unless "the selection entirely rests with the medical examiner who, with full beds constantly staring him in the face, takes in the more "interesting" cases, and rejects many whose condition could be temporarily improved". The examining medical officer would have been told that no one should be admitted "who is not likely to be cured or materially benefited by hospital treatment" and so those who were unlikely to recover, who would not make good clinical teaching material, or those with advanced or chronic disease would be unlikely to be admitted. There was, therefore, "little or no hope of admission to the phthisical applicant or to others with chronic disease, who would undoubtedly be benefited by hospital treatment"⁽¹⁾.

To what extent then did the voluntary hospitals contribute significantly to the decline in mortality? Woodward concludes that although only a small proportion of the total population were patients in voluntary hospitals these hospitals were intended to serve one section of the population, the sick poor, and to this end were concentrated in large cities. Since only a small proportion of those admitted actually died in hospital, "then the contribution of the voluntary hospitals may have been favourable to the mortality of the community"⁽²⁾. In Glasgow the proportion of the population treated in the infirmaries rose in our period (Table XXXVI), the mortality rate at the Royal Infirmary stayed much the same after the 1850's (Table XXII) and was consistently lower at the Western (Table XXVII) and Victoria Infirmaries (Table XXX). The Glasgow voluntary hospitals in this period were far from being the "gateways to death" that Helleiner described⁽³⁾. But in view of the very small proportion

1. Sutherland, op.cit. 355-6.

2. Woodward, op.cit. p.144.

3. K.F. Helleiner, "The vital revolution reconsidered", Canadian Journal of Economic and Political Science, XXIII (1957), reprinted in D.V. Glass and D.E.G. Eversley, eds. Population and History (1965), p.84.

of cases of the major, common, fatal medical conditions that were treated in the infirmaries, the small proportion of sick children who were treated in hospital, and the considerable amount of surgery carried out that was not life saving ⁽¹⁾, these hospitals cannot have contributed greatly to the fall in mortality.

1. The new osteotomy operations developed in Glasgow, are an example.

MISSING

PRINT

6. Poorhouse Hospitals

There was little provision other than charity for the sick poor in Scotland before the enactment of the Scottish Poor Law Amendment Act in 1845 ⁽¹⁾. However, as the commissioners enquiring into the administration and operation of the poor laws discovered in 1844, Glasgow and Greenock were exceptions to this general rule. In Glasgow both City and Barony parishes paid district surgeons to attend to the outdoor poor and there was a poorhouse, the Town's Hospital in Clyde Street, which housed 420 pauper inmates and 27 lunatics ⁽³⁾. The sick in the hospital were attended by a surgeon and they were nursed by pauper women inmates ⁽⁴⁾. The Town's Hospital was situated on the Old Green by the College ⁽⁵⁾. By the 1840's the building had become very overcrowded and it was becoming clear that larger accommodation was required. The Poor Law commissioners noted that a move to the old buildings of the Royal Lunatic Asylum in Parliamentary Road was being considered ⁽⁶⁾ and this duly took place and the old lunatic asylum became the poorhouse of City parish.

Under the Poor Law Amendment Act of 1845 a statutory obligation was laid on parishes to provide medical care for the sick poor ⁽⁷⁾. It was recommended that parochial boards should maintain poorhouses and these poorhouses had to provide their inmates with proper medical attention and provide facilities for dispensing and supplying medicines. By 1855 all three parishes of Glasgow had acquired poorhouses and all three provided a certain amount of medical care for the sick poor.

1. An Act for the Amendment and Better Administration of the Laws relating the Poor in Scotland. 8 & 9 Vict. c.83.
2. Report of Her Majesty's Commissioners enquiring into the Administration and Practical Operation of the Poor Laws in Scotland (P.P.1844, XX), p.9.
3. *ibid.*, on district surgeons, see below, p. 288 ff.
4. "Every female inmate of the Hospital whom the Matron may consider competent to undertake the charge of an apartment, or ward, shall be obliged to do so...". Regulations of the Town's Hospital, Glasgow, op.cit. p.21.
5. Comrie, op.cit. p.456.
6. Rep. H.M. Commiss....(P.P. 1844, XX), op.cit. The Lunatic Asylum had recently moved to more secluded site at Gartnavel.
7. Sections 66 & 67.

(1) Sources

The main sources of information that are available concerning the Glasgow poorhouses are the House Committee Minutes of City and Barony parishes and, after the amalgamation of the two parishes, the Minutes of the Parish of Glasgow. No similar records of the Govan poorhouse have survived and so most of this discussion is confined to City and Barony parishes. The minutes give details of the fortnightly or monthly meetings of the House Committee and the reports presented by the medical officers (1). The medical officers' reports discuss current problems, such as especially high rates of mortality, epidemics, and conditions in the hospital wards and lunatic asylums. In addition there are sometimes special reports on such matters as the duties of the medical officers or on nursing. The monthly, quarterly, half yearly, or annual medical reports of the poorhouses are often given in the minutes;⁷/₈ these give details of the number of patients treated, the number discharged, the number of deaths, the number of births in the lying-in wards, details of the sick diets issued, and of stimulants and drugs prescribed. But these reports are not always included in the minutes and in such cases there is merely a note to the effect that the medical officer had read his report to the meeting. More complete data on the number of sick treated in each poorhouse, the number cured, discharged, and the number of deaths, are given in the Annual Reports of the Board of Supervision for the Relief of the Poor and, after 1898, those of its successor, the Local Government Board for Scotland.

1. The Minutes are not complete; the volume covering City Poorhouse for 1855-65 is missing.

The actual records of the Board of Supervision are very incomplete. Only the Board Minutes are available in the Scottish Record Office; no letter books have survived. No records of the Local Government Board in the period before the First World War appear to have survived at all. There is some information about the Medical Relief Grant in the Lord Advocate's Papers and some details about the poorhouse hospitals in Glasgow are contained in the Departmental Committee on Poor Law Medical Relief (Scotland) ⁽¹⁾ and in the Royal Commission on the Poor Laws and Relief of Distress ⁽²⁾. The Haldane papers in the National Library of Scotland contain the correspondence between Miss E.S. Haldane and officials of the L.G.B. on the subject of poorhouse nursing.

(ii) Administration of Poor Law Medical Relief in Scotland

The history of the development of Scottish Poor Law hospitals is one of the evolution of central executive control over standards in these hospital. At a time when the medical care and nursing in the voluntary hospitals had greatly improved, officials in the central, national Poor Law administration used such powers as they possessed to bring about similar improvements in poorhouse medical provision.

The Poor Law Amendment (Scotland) Act of 1845 established the Board of Supervision for the Relief of the Poor in Edinburgh as the central poor law authority in Scotland ⁽³⁾. The Board comprised the Lords Provost of Edinburgh and Glasgow, the Solicitor General of Scotland, the Sheriffs of the Counties of Perth, Renfrew, and Ross and three nominees of the Crown, one of whom acted as full-time, paid chairman.

1. P.P. 1904, XXXIII.
2. P.P. 1910, XLVI, Appendix VI.
3. Introduced in Parliament by Lord Advocate McNeill, later Lord Colonsay, brother of Sir John McNeill.

The Board had no official representative in Parliament ⁽¹⁾. Its first chairman was Sir John McNeill who had had a distinguished career in the Indian Medical Service and as a diplomat in Persia. Unlike the English Poor Law Commissioners the Board had few direct powers over the administration of poor relief and hence over medical relief. It could not issue mandatory orders, but merely minutes and circulars for the guidance of Parochial Boards. Though it could act on complaints it could not initiate action. A certain amount of control over poorhouse buildings was possible, however, as the plans for the new buildings and alterations to existing ones had to be submitted for the approval of the Board ⁽²⁾. The Poor Law continued to be administered by the Board of Supervision until it was superseded by the Local Government Board for Scotland which was constituted by the Local Government (Scotland) Act in 1894 ⁽³⁾. This Board was represented in Parliament by its President, the Secretary of State for Scotland, and one of its three full-time, paid members was a medical man who was qualified and experienced in public health work.

The Poor Law Act gave the Board of Supervision extensive powers of inquiry into the administration of the Poor Laws. Investigations could be made by Commissioners specially appointed for the purpose but

1. In Dec. 1888 Dr. Cameron pointed out in Parliament the anomaly that the Board had no direct representative in the House of Commons, (although the Solicitor General was an ex officio member), "they could make no more irrational selections as members of the Board than Lord Provosts of Scottish towns, who had nothing to do with the administration of the Poor Law", he remarked. "The Board was composed in the most arbitrary manner, without any reference to the fitness of things .."
Poor Law Journal, XVII (1889), 20-4.
2. R.C. on the Poor Laws (P.P. 1909, IX), pp. 37-46.
3. 57 & 58 Vict. c.58.

were usually carried out by the Board's own officers. At first there was no means of inspecting poorhouses. As Sir John McNeill complained to the Lord Advocate in 1856 "we have only one visiting officer,

a very efficient one certainly, who is also one of the Clerks of the Board, where he has various duties to perform. Give us two other visiting officers - or even one - who with the other one we have can be employed exclusively on that duty"

and additional clerical staff and then the administration of the Poor Laws would be greatly improved ⁽¹⁾. The 1856 Poor Law (Scotland) Act ⁽²⁾ empowered the Board to appoint two General Superintendents to supervise the administration of the Poor Laws, one in the Southern Highland District and the other in the Northern Highland District. These General Superintendents had to visit each parish annually and report anything significant to the Board. They could attend Parochial Board meetings and examine all the minutes and records. Subsequently two officers were appointed to cover the lowlands (the so called South Eastern and South Western Districts). The General Superintendent of the South Western District, which covered Ayr, Dumfries, Kirkcudbright, Lanark, Renfrew, and Wigtown, also supervised all the poorhouses in Scotland. It was the inquiries and reports of these officials which prompted many of the improvements that were made in Glasgow poorhouse sick wards. The executive of the Board was further strengthened in 1873 when Dr. H. Littlejohn was appointed as part-time medical officer ⁽³⁾.

1. S.R.O. L.A./Box 101/5/bdle.1, McNeill to Lord Advocate, 3 April 1856.

2. 19 & 20 Vict. c.117.

3. Nevertheless the executive of the Board of Supervision was smaller and less powerful than the English Poor Law Board; it lacked the influential specialist, full-time medical and sanitary inspection staff. In 1869-70 the cost of the Poor Law Board was £66,810 plus £19,108 for the Medical Division of the Privy Council. The total cost of the Board of Supervision in the same year was £7,807; cited in "Scotland in Parliament: the Poor Law Inquiry", Blackwood's Magazine, 106 (1869), 640-1, in A.W. Coats, ed. Scottish Poor Laws 1815-'70 (1973).

From 1848 the Treasury made an annual Parliamentary Grant in aid of Medical Relief of £10,000 to the Board of Supervision. For the next thirty years this grant was allocated primarily on the basis of the population of parishes as measured by the 1841 census. From 1854, however, in order to make allowance for changes in the population of parishes and variations in actual medical expenditure, the balance that remained of the Grant after allocation to parishes under the scheme of 1848 was shared out in proportion to the actual amount that parishes had spent on medical relief above the minimum required by the 1848 scheme ⁽¹⁾. In 1875 the parochial board of Barony parish petitioned the Home Secretary for a fairer distribution of the Medical Relief Grant pointing out that the way the Grant was distributed was unjust because of the changes in population distribution that had occurred since the census of 1841. In 1841 the population of Barony parish was 106,075 and it had been allotted £350 of the Grant each year, but by 1871 the population of the parish had grown to 222,927 ⁽²⁾. The parishes of Govan and City parish, Glasgow, also petitioned unsuccessfully for a change in the way the Grant was distributed and a deputation of Scottish M.P.'s saw the Chancellor on this matter ⁽³⁾. In 1881 representatives of Scottish parochial boards petitioned for an increase in the Medical Relief Grant ⁽⁴⁾ and in 1882 the Grant was increased to £20,000 p.a. which was distributed on the basis of the actual expenditure made by parishes on Medical Relief ⁽⁵⁾. Scotland, nevertheless,

1. S.R.O. HH/23/16, 11 March 1875.
2. S.R.O. LA/Box 101/5/bdle.2/letter 161, Secretary of State to Lord Advocate with printed Memorial of the parish of Barony, Feb. 1875.
3. Poor Law Journal, III (1875), 330.
4. S.R.O. LA/Box 101/5/bdl.2, Memorial of the Parochial Boards of Scotland; and see Poor Law Journal IX (1881), 124-5 & 179-80.
5. 37th Annual Report of the Board of Supervision (P.P. 1882, XXXI).

continued to get considerably less, relatively, in the Treasury Grant for Medical Relief than was granted to England or Ireland (1).

The Board of Supervision attached conditions to participation in the Medical Relief Grant and thus put pressure on parochial boards to improve the medical care they provided. The 1845 Act had specified that all poorhouses must have a doctor in attendance regularly but had made no stipulation about the medical provision for the outdoor poor (2). To qualify for a share in the Medical Relief Grant of 1848, however, parishes had to appoint legally qualified, salaried medical officers (3). Thus, although the Board lacked the power to make mandatory orders to parochial boards, it made use of the occasion of the introduction of the Medical Relief Grant to improve Poor Law medical services. Again, when the Grant was increased thirty years later the condition attached to a share in the additional money was that parishes employed a specified number of trained nurses in their poorhouses (4).

(iii) The extent of poor law hospital provision in Glasgow.

Much of the hospital treatment available in Glasgow was provided in poorhouse sick wards (5). The poor law authorities had a statutory obligation to relieve all kinds of destitution and the poorhouses were the last resort of those of the sick who could not gain admission to the voluntary hospitals. Unlike the voluntary hospitals, the poorhouses could not specify the sort of cases they would or would not admit. They could not limit themselves to treating the acutely ill or those with interesting conditions which provided good teaching material for the medical students, as could the voluntary hospitals. As the medical

1. See Poor Law Journal, XVI (1906), 357.

2. 8 & 9 Vict. c.83, sec.86.

3. 3rd Ann. Rep. Board Super (P.P. 1849, XXV), p.6.

4. See below, pp. 186-208.

5. See below, p.168 ff.

officer of the Govan poorhouse noted, his hospital treated similar cases to those in a general infirmary and in addition "cases of chronic and incurable disease ⁽¹⁾, a large proportion of which we receive from the infirmaries; and while we have a certain amount of surgical work, the best part of it is taken by the infirmaries" ⁽²⁾.

It was in the poorhouse sick wards that the bulk of in-patient cases of pulmonary tuberculosis in Glasgow was treated, as well as other respiratory diseases, plus the general medical and surgical cases that the voluntary hospitals could not accommodate. Thus it was the poor law hospitals that had the problem of dealing with the principal causes of death in Glasgow. Conditions in Glasgow poorhouse hospitals are therefore of particular importance in any discussion of mortality trends in the city.

The boundaries of the three parishes which largely covered Glasgow did not correspond with the municipal boundaries of the city nor with the registration districts. All of City parish, which covered the old part of the city around the cathedral and the old college, fell within the municipal area. The St. Enoch burn (which was later piped underground) formed part of the boundary between City and Barony parishes, for Barony almost entirely surrounded City parish. To the west Barony was separated from the parish of Govan by the River Kelvin and the Clyde separated Govan from Barony and City parishes to the south. In addition parts of the parishes of Cathcart, Eastwood and Rutherglen fell within the city boundary. Both the parishes of Govan and Barony

1. Pulmonary tuberculosis and many other respiratory diseases would have fallen into this category at this time.
2. Evidence of W.J. Richardson, M.O. Govan poorhouse, R.C. on the Poor Laws Appendix VI (P.P. 1910, XLVI) p.793.

extended beyond the area of the city and both the poorhouses lay outside the Glasgow registration area and hence deaths that occurred in them were not included in the Glasgow mortality returns. Nevertheless, the poorhouses at Barnhill and Merryflatts did treat many of the Glasgow sick and their contribution to the city's mortality pattern is worth considering. On the other hand the poorhouse of City parish was within the city and the three new, purpose-built hospitals of the Parish of Glasgow which were completed in the first decade of the twentieth century all lay within the Glasgow boundary and the deaths occurring in them were therefore included in the Glasgow returns.

From the time the poorhouse hospitals of Glasgow were set up in the middle of the nineteenth century they were confronted with problems that were only finally overcome in the early twentieth century. The poorhouses contained buildings that were often unsuited for use as hospitals, they were staffed by ignorant and untrained nurses and over-worked doctors. In the early years they had to deal with epidemics as well as the usual ills of a poor, industrial, urban population. As well, the parishes of an industrial city like Glasgow, with populations which had grown rapidly since 1841, suffered particularly from the arbitrary manner in which the Medical Relief Grant was administered which resulted in them receiving relatively less government aid than many rural parishes ⁽¹⁾. Finally, and partly related to the limited funds available, the way in which the poorhouses were administered created problems. They were run by non-medical governors who acted under the the House Committees and the prime concern of these governors was usually economy; Parochial Boards were always anxious to keep local

1. See above, p. 160.

poor rates down. There was therefore often friction between medical officers and governors over such matters as the cost of special sick diets and medicines; a friction which often hampered effective treatment.

Between the middle of the nineteenth century and the early decades of the twentieth there was a revolution in the way in which the sick poor were treated in the poor law institutions of Glasgow. These changes came about, in part at least, as the result of constant pressure from the Board of Supervision for improvements in poorhouse sick wards (which were often overcrowded). By the end of the period under consideration City and Barony parishes had amalgamated and built three new hospitals for the treatment of the sick which were run by medical superintendents and the parish of Govan had extended its hospital block at Merryflatts. Another result of Board of Supervision pressure was the replacement of the old, pauper inmate nurses by trained nurses in all these hospitals.

As required by the Poor Law Amendment (Scotland) Act, all three Glasgow parishes acquired poorhouses. City parish had bought the old Royal Lunatic Asylum buildings. The parish of Govan used the old cavalry barracks in Eglinton Street as a poor house while awaiting the completion of their new house at Merryflatts (now the Southern General Hospital), and the Barony poor were housed first in temporary premises in Anderston before moving into a new, specially built poorhouse at Barnhill (now Foresthall Hospital). None of these poorhouses had hospitals for the sick that were entirely separate from the rest of the house. The sick wards might be scattered amongst the ordinary wards or grouped together. At the City poorhouse there were 318 beds in sick

wards in 1876 and 99 in the North building, and by 1888 25 sick wards accommodated a total of 430 sick. Barnhill poorhouse had hospital wards with 170 beds in 1863, 200 in 1880, and 380 in 1888. After the amalgamation of the two parishes the poorhouse sick wards were replaced by three hospitals containing some 1,400 beds. Govan poorhouse hospital had 140 beds in 1869, 240 beds in 1888, and by 1909 contained (together with the two wards then under construction) 600 beds (Table XLI).

Table XLI

Poorhouse hospital accommodation in Glasgow

Year	Barnhill	City	Stobhill	Eastern	Western	Govan	Total
1863	178 (1)						
1869						140 ⁽⁶⁾	
1876	206 (2)	318+99 ⁽⁴⁾					763
1880	200						
1887		277 ⁽⁵⁾					
1888	380 (3)					240 ⁽⁷⁾	897
1892		430					
1902			900				1570
1904				c.300	c.200		
1909						600 ⁽⁸⁾	2000

Unless otherwise stated the sources of these data are the House Committee Minutes of the parishes of Barony and City, Glasgow.

1. A sub-committee commented in April 1863 on the deficient and scattered nature of the hospital wards. A fever hospital block was built in 1863 and extended in 1870-1.
2. At this time the so called Cottage Hospitals (hatted fever wards) contained 11 wards with 85 beds in all. These do not appear to have been used as sick wards at this time, J. Mackay & S.H. Wright, Barnhill Reports by Governor and Surgeon as to Hospital Arrangements (Glasgow, 1876). In 1885 the Board of Supervision had sanctioned the construction of two cottage hospital blocks which were ready for use in March 1887.
3. Christie, op.cit. p.73. In 1886 a sub-committee reported that hospital accommodation was inadequate, plans for a new hospital at Barnhill had been drawn up in 1883 but in 1888 it was decided to let the matter drop as the numbers in the hospital were falling and the site was considered to be unsuitable, see below p. 183.

4. M.O. reported that wards were grossly overcrowded.
5. In 1887 Russell and Littlejohn recommended that the male hospital should accommodate 74, the female hospital 67, the Magdalene block 65, and 71 sick in the North building; 277 in all. But in 1888 the Board of Supervision sanctioned the City poorhouse to accommodate 230 sick in the male, female hospitals and the Magdalene block, plus the sick wards in the North building. Even so the poorhouse was said in 1888 to contain 25 sick wards with a total of 428 beds, Christie, op.cit. p.76, he notes that it was usual, in addition, to use two or three ordinary wards as sick wards in winter and spring.
6. A Description of the New Parochial Buildings at Merryflatts, Parish of Govan (Glasgow, 1869).
7. Christie, op.cit. p.78.
8. R.C. in Poor Laws Appendix VI (P.P. 1910, XLVI), p.793.

The total number of patients treated in the three Glasgow poorhouses increased considerably in the latter part of the nineteenth century, as Table XLIII shows.

Table XLIII (1)

Patients treated in the three Glasgow poorhouses

Year	City	Barnhill	Govan	Stobhill, Eastern and Western District Hospitals	Total
1861	2446	3074	790		6310
1870	6898	4826	1235		12959
1875	5577	1846	1386		8809
1880	7101	3060	1562		11723
1885	6588	3285	1185		11058
1890	6856	3285	1262		11403
1895	5499	3662	1610		10771
1900	4994	5307	2136		12437
1905		2633	2891	9713	15237
1910		3100	3848	9715	16663

In 1905 the three new hospitals of the new parish of Glasgow replaced the hospital wards of City and most of those at Barnhill poorhouse and treated over 9,700 patients, in the same year Govan poorhouse hospital

1. Sources, Ann. Reps. Board of Supervision and L.G.B.

treated almost three thousand sick. Until the 1890's more sick people were being treated in the three poorhouse hospitals than in the general voluntary hospitals in Glasgow but from the mid-90's the number of patients treated in the voluntary hospitals each year began to exceed the number treated in poorhouse hospitals (Table XLIII).

Table XLIII (1)

Patients in the Glasgow poorhouse and voluntary hospitals.

Year	Total poorhouse sick patients	Total voluntary hospital patients
1861	6,310	4,103
1865	9,399	6,229
1870	12,959	6,247
1875	8,809	6,473
1880	11,723	7,141
1885	11,058	8,158
1890	11,403	9,131
1895	10,771	11,335
1900	12,437	12,416
1905	15,237	15,612
1910	16,663	20,092

It is difficult to relate the total number of poorhouse patients to the population of the city as so many of the inmates of Govan and Barony poorhouses came from outside the city boundary. The constant complaints of crowding in the sick wards suggests that the hospital accommodation in the poorhouses was not keeping pace with the growing demand for treatment. It was probably only with the construction of the new parochial hospitals in the first decade of the twentieth century that the demand for poor law hospital accommodation was met.

1. Sources, Ann. Reps. Board of Supervision and L.G.B. and of the Glasgow voluntary hospitals.

(iv) City Poorhouse

The City poorhouse was housed in the lunatic asylum that William Stark had designed in 1809 ⁽¹⁾. The old cross-shaped, domed asylum building was used for pauper lunatics and separate male and female hospital blocks were built for the sick. The neighbouring Female House of Refuge (the Magdalene block) was bought by the City parochial board in 1865 and this too was used for the sick ⁽²⁾. In addition there were sick wards in the large North Building that was erected in the late 1840's ⁽³⁾.

The physical conditions in the poorhouse could obviously affect, either negatively or positively, the medical treatment that was given in the sick wards. The recovery of the sick would not be hastened if they were treated in overcrowded, ill-equipped sick wards located in a building in a noisy, polluted industrial district. Yet these were the conditions that prevailed at the City poorhouse. The poorhouse was situated in a bad position for a hospital, particularly for a hospital that treated many cases of the prevalent lung diseases. The Royal Lunatic Asylum had abandoned their buildings in Parliamentary Road in the 1840's because this area was becoming industrialized. This process continued subsequently, with industry replacing the houses and gardens; the Deaf and Dumb Institute on the corner of Parson and Glebe Street moved to the suburbs in 1868 because of the deterioration in the surroundings which had left the Institute, "in the very midst of noxious exhalations from surrounding works of every kind" and "immediately surrounded by lands of houses high enough and wide enough to check the free air of heaven in its course"⁽⁴⁾.

1. See drawing in Gomme & Walker, op.cit. p.71.
2. The Magdalene Asylum was built in 1812 to the east of the Lunatic Asylum "for the reception of females desirous to return to the paths of virtue" (Cleland (1817), op.cit. p.181). It was a three storey block which accommodated a matron and 34 penitents who did laundry work and sewing.
3. See above, Table XLI.
4. 41st Annual Report of the Deaf and Dumb Institute (1862), p.5. quoted by Drs. H.D. Littlejohn and J.B. Russell, Report to the Board of Supervision on the Glasgow City Poorhouse, (Edinburgh 1887), p.2.

The Female House of Refuge had also moved to the country in 1865, followed by the nearby Industrial and Reformatory Schools, and in 1871 the City Fever Hospital was moved out to Belvidere leaving the buildings in Parliamentary Road to be used as a reserve hospital. The air pollution was such in the 1880's that, "Trees will not grow, flowers will not thrive - even grass can be maintained only as an annual" (1). To the north west of the poorhouse lay Cowcaddens and the Monklands Canal. Along the canal were works of all kinds - foundries, chemical works, soap works, asphalt works, tar and naphtha distilleries, all with high chimney stacks adding to the general pollution of the air and the fogs "peculiarly irritating to the lungs" (2). The poorhouse was bounded north and west by the Caledonian Railway Northern Station and immediately outside the northern boundary wall was a pottery and the premises of a manufacturer of asphalt and waterproof cloth. In this area north of Parliamentary Road no one lived, unless he had to be close to his place of work. The situation was certainly not an ideal one for treating the sick.

Not only was the poorhouse in an unsuitable position for a hospital, it was also badly designed. The male hospital was immediately on the building line of Parliamentary Road which was on the route of heavy traffic going to and from the goods station at Townhead. The noise made by the traffic on the granite paved streets not only disturbed the sick but also, "interfere seriously with the use of the stethoscope by the medical attendants" (3). The female hospital was a three storey block in a back court formed by the male hospital, the administrative offices, and the Magdalene block. Its wards were built back to back

1. Russell and Littlejohn op.cit.
2. *ibid.*
3. Littlejohn and Russell, op.cit. p.7.

thus preventing adequate lighting and through ventilation. The north facing wards had only small windows down one side and these were placed, like prison windows, six and a half feet above floor level ⁽¹⁾. In addition to these two hospital blocks the Magdalene building was used as part of the hospital and there were six large hospital wards in the North Building which had never been intended to house the sick. In order to make full use of the 46 foot width of the North Building, the building was partitioned in half to take four rows of beds ⁽²⁾.

The medical officer complained in 1876 that these wards in the North Building were unsuitable for housing the sick as they lacked ancillary rooms that could be used as sculleries, w.c.'s, store rooms, ward kitchens, and nurses' rooms, or side rooms where serious or troublesome cases could be treated or where patients could be examined in privacy ⁽³⁾. These faults do not appear to have been remedied as in his Report on the Poorhouse in December 1882 the Board of Supervision Medical Officer, Dr. Littlejohn, remarked that many wards had w.c., bath, and scullery all in one small closet, "The dishes are washed and stored in the water closets. In one case the dishes were piled up around and up to within two or three inches of the earthenware basin" ⁽⁴⁾. In one ward kitchen there were two beds, one of which was used for medical examinations and the other by an inmate nurse ⁽⁵⁾. Even though as a result of Littlejohn's report more baths and lavatories were installed ⁽⁶⁾, five years later when Drs. Littlejohn and Russell inspected the poorhouse as Commissioners under Section III of the Poor Law Act they again

1. Littlejohn & Russell, op.cit. pp.5-6.
2. *ibid.*
3. G.C.A. City Parish Minutes House Committee, D HEW 1 3 5, p.115.
4. G.C.A. D HEW 1 1 5, p.207.
5. G.C.A. Chairman and Special Committees' Minute Book, D HEW 1 10 2, p.10.
6. *ibid.*, p.4.

commented on the lack of sanitary facilities and the lack of space in which food could be prepared and stored. In the Magdalene block the rooms containing the w.c.'s and baths were also used as sculleries, "and for dividing out food, tables standing opposite the baths for this purpose" (1). In spite of the existence of these potential sources of food contamination and disease, the poorhouse was scrupulously clean. As Littlejohn and Russell remarked, "The smoke and smut laden

atmosphere of the northern quarter of Glasgow produces a daily defilement of all surfaces, which would drain the financial resources of any Institution which had to pay for all the labour requisite to maintain in such a high standard of cleanliness as is preserved in the City Poorhouse, only at the cost of materials" (2).

It was, therefore, in these far from ideal conditions that City parish had to cope with the ills of the inhabitants of the crowded central districts of Glasgow. In the early years, before 1869, fever was a problem; thereafter cases of infectious disease were sent to the City Fever Hospital. Before that somehow with an already crowded hospital the victims of epidemic disease had to be treated. When cholera threatened in 1848 the parish took over the old Clyde Street hospital as a cholera hospital (3) and in the following year it resorted to renting a detached cottage bleaching house on New City Road as a temporary hospital for cholera cases (4). Usually fever patients were treated in the Royal Infirmary, but in the winter of 1852 when the Infirmary was too crowded to take any further admissions, the East Wing of the new North

1. Littlejohn & Russell, op.cit. p.8.
2. ibid. p.10.
3. G.C.A. D HEW 1 3 1, p.120.
4. ibid. p.139.

Building was prepared as a temporary fever hospital ⁽¹⁾. In the early 1860's fever wards were again opened in the poorhouse ⁽²⁾ and some fever cases from City parish were treated at Barnhill in 1869 ⁽³⁾.

Overcrowding of the poorhouse sick wards was not only caused by epidemic diseases as there was also an annual seasonal winter upsurge in admissions of patients with respiratory diseases. As the numbers of sick increased in the winter additional wards might be taken over for them since before the employment of trained nurses it was possible to provide additional nurses from among the pauper inmates fairly quickly. Inevitably at such times crowding increased. Special sick wards had to be prepared for both men and women in the North Building of the poorhouse in the severe winter of 1869 ⁽⁴⁾ and the increase of hospital admissions in the winter of 1871 led to such overcrowding that, "in several cases three boys sleep in each bed and the beds are not very large" ⁽⁵⁾. A year previously it was reported that, "The advent of the cold and foggy weather early in the winter, as usual, resulted in the increase of diseases of the respiratory organs, and the consequent rapid addition to the numbers of Sick inmates" ⁽⁶⁾

and again additional wards were hastily opened for the sick. It had been noted in the winter of 1867-'8 that the additional accommodation for the sick in the North Building was required not because of any particular outbreak of disease, "except the affectations of the chest usual in this season of the year" ⁽⁷⁾. It was obviously entirely

1. D-HEW 1 3 1, p.509.
2. G.C.A. D HEW 1 3 3, p.128, wards were opened from 23 November 1863 to 13 April 1864 and from 19 September 1864 to the 17 August 1867.
3. G.C.A. D HEW 2 7 9, 15 Nov. 1869.
4. G.C.A. D HEW 1 3 3, p.76.
5. G.C.A. D HEW 1 3 4, p.27.
6. G.C.A. D HEW 1 3 3, p.176.
7. G.C.A. D HEW 1 3 2, p.276.

predictable that the number of admissions to the City poorhouse hospital suffering from respiratory diseases would increase in the winter months, yet there was no spare hospital accommodation that could be kept in reserve. Year after year there are references in the medical reports of the winter quarters to "prevailing disorders" of an "ordinary character, namely bronchitis, consumption of the lungs, and inflammatory diseases of these organs" (1). In addition the situation might be exacerbated by the state of trade at this time of year. In January 1877 the medical officer noted that there had been an increase in the number of sick and infirm men admitted which he attributed to the general depression of trade in the city. "Many old people and semi-invalids who

could find employment when times were good, were early thrown out of employment when slack time came and being feeble were soon through privation in such a state of health that the district medical officers felt warranted in certifying them incapacitated for work" (2).

The constant overcrowding of the City poorhouse led the Board of Supervision to press for action to remedy the situation. In 1876 the overcrowding had been such that a House Committee had agreed that a hundred more beds were required for the sick and infirm but thereafter, despite the continual overcrowding particularly in the winter months, nothing was done. The House Committee argued that there would be sufficient room for the sick when a separate asylum was built for the insane and the insane wards in the central building could be added to the rest of the poorhouse (3), a position they were to maintain for

1. G.C.A. D HEW 1 3 5, p.26.
2. *ibid.* p.137.
3. G.C.A. D HEW 1 3 5, p.19.

many years. Over the next twenty years or so the parochial authorities fought a long battle with the Board of Supervision over conditions in the City poorhouse. In 1880 the Board's visiting officer, Malcolm McNeill, reported that the poorhouse had been very overcrowded in the previous winter. The classification of the poor into sick, infirm, turnout cases etc. had been impossible; beds had been laid on the floor, "and also by placing the bedsteads together in pairs and accommodating three paupers in each pair". The solution, McNeill suggested, was for the poorhouse to move to the country. To these complaints the City parochial board replied that there would be plenty of room for the sick when the accommodation used by the insane became available ⁽¹⁾.

The following spring McNeill recommended that the parishes of Barony and City should combine for poorhouse purposes. He complained that the City parochial board, instead of facing facts, "amuse themselves with calculating the number of beds which will become available when the lunatics are removed elsewhere", forgetting that the lunatics were still there and even when the lunatic wards were free there would still not be sufficient room in winter ⁽²⁾. McNeill suggested that Barony poorhouse should become the hospital for both parishes, a part of the City poorhouse should be kept for convalescents, and a new test house and a house for children should be built. There followed a Report on the Poorhouse by Dr. Littlejohn in which he remarked on the general overcrowding, the lack of sanitary facilities, the unsuitableness of the site, etc. ⁽³⁾. Again the City Board pleaded that the lunatic wards would soon be available.

1. G.C.A. D HEW 1 3 6, p.170 & 178.
2. G.C.A. D HEW 1 1 5, p.81.
3. *ibid.* pp.204-9.

By the end of 1884 some of the lunatic wards were empty but in the winter that followed the house was again overcrowded. The Board of Supervision pressed the parochial authorities to take action, pointing out that the overcrowding of any house was held to be a nuisance under the Public Health Act and, "The overcrowding of a Poorhouse into which the disabled and destitute Poor are sent by a Parochial Board amounts to a public scandal" (1). The parochial board justified itself in terms of the doctrine of "less eligibility". Conditions in the poorhouse, it argued, did not amount to overcrowding in terms of the Glasgow Police Act and Poor Law administration was based on the proposition that "recipients of relief were not to be made better than those of the same class who support themselves" (2). It was absurd that a man who supported himself required only 300 cubic feet of space in his own home (the minimum laid down by the Glasgow Police Act) but much more when he could not support himself and was in the poorhouse.

Threats from the Board of Supervision, however, did compel the City board to take some steps. Soon City parish informed the Board of Supervision that it was considering building a poorhouse outside the city; which was just as well, it was told, as it relieved the Board of Supervision "from the necessity of considering whether they can any longer consistently with their duty hold an offer of relief in the Poorhouse to be an offer of adequate Relief when the Poorhouse was overcrowded" (3).

The Board of Supervision considered the situation to be so serious that McNeill and Dr. Littlejohn met the parochial board to discuss the matter

1. G.C.A. D HEW 1 1 5, p.410.
2. G.C.A. D HEW 1 1 5, p.416.
3. S.R.O. HH/23/20, March 1886.

and Dr. Littlejohn explained the advantages that a move to the country would bring to the hospital cases in the poorhouse ⁽¹⁾. But all this was to no avail. The parochial board was determined not to incur the expense of a new poorhouse ⁽²⁾. It proposed that a new poorhouse hospital should be built on the totally unsuitable site at Parliamentary Road, but this the Board of Supervision refused to allow ⁽³⁾. The obstinacy of the parish authorities led the Board of Supervision, on hearing that the City poorhouse had been overcrowded throughout January 1887, to appoint Drs. Littlejohn and Russell (the Glasgow M.O.H.) as Commissioners under Section III of the Poor Law Act to inspect and report on accommodation in the City poorhouse ⁽⁴⁾. The parochial authorities rejected this report only to be reminded of their statutory duty to provide indoor relief and threatened with the Court of Session ⁽⁵⁾.

Having failed to get the City poorhouse and hospital moved from the industrial pollution of Parliamentary Road the Board of Supervision insisted that the number of admissions be rigorously controlled.

Littlejohn and Russell had specified the maximum number that the various departments of the poorhouse could house satisfactorily and these limits had to be observed. The Governor must inform the Inspector each week of the number and type of vacant beds in the house and he would inform the Board of Supervision whenever the number fell below ten. No paupers were to be admitted to the poorhouse in excess of the number of vacant beds. The City parochial board was threatened that if the poorhouse was

1. G.C.A. D HEW 1 1 6, p.2.

2. Perhaps because of the relatively large amount that the parish was already spending on medical treatment. In 1886-7 the total income of City parish was £56,245 and expenditure on medical treatment was £3,284; in the same year the income of Barony parish was £86,707 but expenditure on medical treatment only £2,578. Nicol, op.cit. pp.330 & 332.

3. G.C.A. D HEW 1 1 6, p.66.

4. S.R.O. HH/23/20, 3 March 1887 and see above, p.158.

5. G.C.A. D HEW 1 1 6, p.186.

ever full or overcrowded that the Board of Supervision, "will be unable to hold an admission to the House as an adequate test of relief" (1).

Nevertheless the crowding of the poorhouse continued even when all the lunatics had been moved to the new asylum at Gartloch. In the early months of 1895, despite the use of aseptic techniques, there was an outbreak of post-operative infection with cases of puerpural septicaemia, pyaemia, and pelvic peritonitis which the medical officer attributed to the crowding of the wards (2). In November of 1895, R.B. Barclay of the Local Government Board reported that although the medical and nursing staff of the City poorhouse was doing all it could for the patients, "the situation, construction and arrangements of the building are not in accord with modern ideas". He proposed that City and Barony parishes should combine to build a hospital for 800 to 1,000 patients. "I claim for the sick ordinary poor a share of the liberal accommodation and treatment bestowed on lunatic poor" he wrote (3). In August 1898 the two parishes of Barony and Glasgow (City) amalgamated to form the parish of Glasgow (4).

1. G.C.A. D HEW 1 3 8, pp.361-2.

2. G.C.A. D HEW 1 3 11, p.338.

3. G.C.A. Amalgamation of Glasgow (City) and Barony parishes D HEW 6.3, p.4.

4. It was said that City parish wanted the amalgamation so that the parish could build "an hospital and infirm poorhouse and a test and turnout department which would serve the use of both parishes and cost less money to their ratepayers than if done separately ..."
Glasgow Herald 22 Jan. 1898.

(v) Barnhill Poorhouse

The new Barony poorhouse was specially designed and built as a poorhouse and was completed in 1850. It was situated on the old Barnhill estate on high land on the outskirts of the city towards the north east. Here there was sufficient land available for the erection of additional buildings when these were required. However, despite the fact that the poorhouse was newly built, it was not provided with a special hospital block and the nine male and ten female sick wards were scattered throughout the house. The poorhouse was described on one occasion as an "entire Hospital with several Wards within it for the accommodation of the healthy" (1).

Like the City poorhouse, the major medical problem confronting Barnhill poorhouse in the first decade of its existence was that of epidemics of fever and other infectious diseases. Infectious patients had to be accommodated at short notice and the poorhouse was not equipped at first to deal with sudden influxes of cases and had to improvise as best it could. When cholera threatened in late 1853 a loom shop at Barnhill was prepared for patients (2); and the Barnhill mansion house was converted into a fever hospital in 1852 when the Royal Infirmary was unable to admit any more fever cases (3). Again in 1863 when fever swept through the city and the Royal Infirmary warned that it would have to stop admitting fever cases, the Barony authorities improvised. The schoolroom of the poorhouse was prepared for fever cases and in addition a temporary wooden building was hastily erected in the grounds. This

1. G.C.A. Barony Poorhouse Minutes, D HEW 2 7 12, 19 Jan. 1880, and see Table XLI for details of bed numbers.
2. G.C.A. D HEW 2 7 3, 7 Nov. 1853.
3. G.C.A. D HEW 2 7 2, 1 Dec. 1852.

building was put up without the prior approval of the Board of Supervision and the Board was furious when it found out (1).

The new wooden fever hospital which opened in March 1864 had its own medical officer in charge of 90 fever beds and 30 beds for convalescents and was the first stage in the construction of the Barnhill fever hospital which grew in successive epidemics. Even in its first year it proved to be insufficient; by the autumn it was full and the small hospital in the schoolroom was reopened (2). Pressure on the hospital was to continue throughout the winter. These fever cases were often very ill, or even moribund on admission as the medical officer complained, "Several cases come in to die only - were in fact

moribund when they came in. This gives the patient little or no chance of life, for the removal at so critical a period, in such cold weather and so long a distance destroys in many cases any hope of recovery (3).

Barnhill was obviously not ideally placed to receive the acutely ill, situated as it was on the outskirts of the city. (On this occasion, at the medical officer's request, the district medical officers were asked to attend such cases at home.) By February 1865 it seemed that still more hospital accommodation would be required for fever cases and the chairman of the parochial board saw Sir John McNeill of the Board of Supervision in Edinburgh to get permission to put up additional temporary hospital wards; but by the end of the month it was reported that the Royal Infirmary had empty beds and that the municipal authorities were providing fever beds and so the proposed extension was postponed (4).

1. S.R.O. HH/23/11, p.108.
2. G.C.A. D HEW 2 7 7, p.282.
3. *ibid.* p.315.
4. G.C.A. D HEW 2 7 7, p.335.

The respite was short for the fever hospital was again made ready when cholera threatened in 1866 ⁽¹⁾; but the great test of the hospital came in the relapsing fever epidemic of 1870. By August of that year half of the patients in Barony fever hospital were cases of relapsing fever and in the next three weeks a further twenty-one cases were admitted. Though relapsing fever was not usually fatal, cases required at least a week longer in hospital than cases of typhus fever as well as careful nursing since, "the relapse is attended in the

previously debilitated with such a degree of prostration as to necessitate at times the free administration of stimulants and in almost all cases during the convalescence the food requires to be even more abundant than ordinary Typhus patients require"⁽²⁾.

Relapsing fever cases had to be treated separately from cases of typhus in order to prevent cross-infection. The fact that at least two patients contracted typhus while recovering from relapsing fever indicates that there was insufficient room in the wards to separate the two conditions adequately. With the advent of the relapsing fever the parochial board hastily planned additional fever wards which were sanctioned in November and soon in use ⁽³⁾. The number of cases of relapsing fever fell from the end of 1871, however, and it was possible to close the fever hospital in the summer of 1872 ⁽⁴⁾.

Although the Barony fever hospital was later reopened the number of cases treated there was small. One block was reserved for smallpox

1. G.C.A. D HEW 2 7 8, 10 Sept. 1866.
2. G.C.A. D HEW 2 7 9, 15 Sept. 1870.
3. *ibid*, 31 Oct. 1870, 9 Jan. 1871 and 29 May 1871.
4. *ibid*. 5 Aug. 1872.

cases which, as was noted, of all infectious diseases is "incomparably the most difficult to deal with on account of its special gravity, the ease with (which) its infection is conveyed", and the difficulty of effective disinfection ⁽¹⁾. The other fever blocks were used for convalescent scarlet fever cases and for whooping cough cases ⁽²⁾. In August 1874 when there were only six patients left in the fever hospital proper the municipality agreed to admit Barony fever patients to the municipal fever hospitals, with the parish paying for those Barony patients who came from outside the municipal boundary ⁽³⁾. The cottage fever blocks were used for some years for the female infirm (i.e. elderly) and were again used for infectious diseases in the severe outbreaks of whooping cough and measles in 1884 ⁽⁴⁾. When these epidemics ended in mid-1884 the cottage blocks were taken over as part of the hospital. With very little alteration they made admirable large, airy, hospital wards ⁽⁵⁾. Thus the special hospital accommodation that was provided at first under the pressure of epidemics was later adapted for general hospital patients.

Conditions in the Barony poorhouse hospital wards were poor and there was often overcrowding. The Board of Supervision visiting officer complained in 1858 that men were sleeping two to a bed, to which the Parish Inspector rather ingenuously replied, "this practice had existed in the House from its opening till now - is also the practice in every House known to your Reporter and there is no particular evil from its practice that is likely to arise nor any complaint of the Inmates" ⁽⁶⁾.

1. G.C.A. D HEW 2 7 10, p.131.
2. G.C.A. D HEW 2 7 10, p.229.
3. *ibid.* pp.341 & 504-5.
4. There was always the threat of an outbreak of infectious diseases of childhood among the large number of institutionalised, pauper children at Barnhill.
5. G.C.A. D HEW 2 7 14, p.76.
6. G.C.A. D HEW 2 7 5, 5 March 1858.

The Inspector confirmed that at this time there was a serious shortage of bed linen which made it difficult to change the beds. The wards were often so crowded that, "patients admitted to Hospital with one form of skin disease contract others during their residence" (1). In addition there was a shortage of sanitary facilities. There were only two baths in the poorhouse, one in the hospital and one in the probationary wards (2) and there was no way in which the V.D. and skin patients could be isolated and provided with separate facilities (3). Further, as the poorhouse was not designed primarily as a hospital there was no proper operating room. When the medical officer had asked for "an apartment for the purpose of operating" in 1855 he was given the old Dead Room (4). This was not altogether suitable for the medical officer was complaining some years later that all operations had to be performed in the wards or in the ward kitchens, "within sight and hearing of the other patients. The Ward Kitchens are especially unsuitable for use as operating rooms from the want of sufficient light and proper ventilation, and operating in a Ward where the patients are lying is highly inconvenient to the operator, and trying to the feelings of the other patients" (5).

As at City poorhouse the pressure on hospital wards tended to increase in the winter. At Barnhill in November 1867, for example, the hospital and infirm wards were so full that the sick had had to be put into wards that were unfit to be used, for lack of anything better. There were no beds available for any further admissions: the medical

1. G.C.A. D HEW 2 7 10, p.379.
2. G.C.A. D HEW 2 7 6, Jan. 18 1862.
3. G.C.A. D HEW 2 7 10, p.594 & D HEW 2 7 11, pp. 61 & 63.
4. G.C.A. D HEW 2 7 4, 4 March 7 1855.
5. G.C.A. D HEW 2 7 13, p.537.

officer reported, "I have stowed away here into every available corner and there is not now one spare bed". Patients who should have been in hospital had been admitted to the turnout wards ⁽¹⁾. As a result of these complaints, however, two empty wards were repaired and equipped ⁽²⁾. One result of overcrowding was the increased risk of cross-infection. The Barnhill medical officer complained in 1863 that crowding was so bad in the itch (scabies) wards, that a number of the beds were double, and that in some of the single beds, "as many as four children from the ages of three to twelve years sometimes sleep together for want of sufficient accommodation" ⁽³⁾. This must have propagated the disease still further.

Conditions in the Barnhill sick wards improved little in the 1870's. An asylum was built for the Barony insane at Woodilee which opened in 1875, thus freeing the asylum at Barnhill, but it was not made available for the sick. However, when trained nurses were introduced at Barnhill in the early 1880's the nine male and ten female sick wards, then scattered throughout the poorhouses, were consolidated together to provide a hospital that was separated as far as possible from the rest of the poorhouse ⁽⁴⁾. With trained nurses in the hospital the Board of Supervision felt able to press for further improvements. In the winter of 1883-4 the Board's visiting officer, Malcolm McNeill, noted that he had found at Barnhill that "twenty-five children were at one time bestowed in eighteen beds" ⁽⁵⁾ and in the next few years there were constant complaints of overcrowding made by the medical officer and by McNeill. In 1886 McNeill suggested that by the next winter the parochial

1. G.C.A. D HEW 2 7 8, 25 Nov. 1867.
2. *ibid.* 30 Dec. 1867.
3. G.C.A. D HEW 2 7 7, p.90.
4. G.C.A. D HEW 2 7 12, 19 Jan. 1880.
5. G.C.A. D HEW 2 7 13, p.486.

board "may resolve on some step which may place their very complete staff at a less painful disadvantage" (1), two cottage blocks were therefore built (2) but even this was not enough (3). The parochial board had previously commissioned plans for a new self-contained hospital (4) which were dropped because of the estimated cost (5). These plans were reconsidered in 1886 when the Board of Supervision complained of overcrowding and the construction of a new hospital was again debated in 1888 (6). On this occasion the Board of Supervision asked the medical officer at Barnhill to report on the sufficiency of accommodation for the sick and for children, but by this time the pressure on the hospital had declined somewhat. The medical officer reported that the number of children in the poorhouse had fallen and the health of the remainder had improved. Ophthalmia and various contagious skin diseases which had been prevalent were now seen less frequently and this he attributed to the reduction in overcrowding (7). The two new cottage blocks were proving useful in housing hospital patients but some wards were still overcrowded and badly ventilated. At this point the matter was left for the time.

In August 1898 the two parishes of Barony and City (Glasgow) amalgamated to become the parish of Glasgow. A committee of the new parish soon confirmed that accommodation for the sick and bed-ridden in both poorhouses was inadequate and recommended that provision should be made "for the proper treatment of the sick poor, towards their early recovery and return to work, and ability to maintain themselves and families" (8). It was not considered a practical proposition to rebuild

1. G.C.A. D HEW 2 7 14, p.373 & Glasgow Herald Oct. 8 1886.
2. S.R.O. HH/23/20, 17 March 1887.
3. G.C.A. D HEW 2 7 14, p.496.
4. In 1883, see Glasgow Herald 27 Oct. 1886.
5. *ibid.* 31 March 1886.
6. G.C.A. D HEW 2 7 14, p.314.
7. Minutes Barony Parochial Board and Committees, D HEW 2 2 12, pp.16-7.
8. G.C.A. Parish of Glasgow Minutes, D HEW 1 2 8, p.161.

the existing poorhouses, although it was suggested that Barnhill might ultimately be adapted for the ordinary poor. It was proposed that the valuable central site of the City poorhouse should be sold and one large general hospital and two smaller acute hospitals, situated at opposite ends of the parish, should be built. It was calculated that some 600 patients in the City poorhouse and 400 at Barnhill required hospital treatment ⁽¹⁾. There were in addition 120 bed-ridden infirm in City poorhouse and 50 at Barnhill. Thus a total of some 1,170 hospital beds was required plus accommodation for children. The 47 acre Stobhill estate was bought as the site for a 1,200 bed general hospital (800 beds in general medical and surgical wards, 120 phthisis beds, plus accommodation for the infirm and for children). Two smaller sites were bought for the district general hospitals. One was at Duke Street, in the east of the city within a mile of Bridgeton Cross, and the other was the Oakbank estate on Possil Road which was at the western end of the parish. The Western district hospital had some 200 beds and the Eastern district hospital some 300 ⁽²⁾. The fact that the poorhouse hospitals of City and Barnhill were replaced by no less than three hospitals with some 1,400 general beds indicates the very large number of cases requiring hospital treatment with which the poorhouse hospitals had been dealing.

1. Of the 600 patients in the City poorhouse only 298 had trained nursing at this time as there were no trained nurses in the North Building.
2. The first wards at Stobhill were ready in November 1902 and the transfer of patients from the poorhouses began. In May 1903 the first patients were admitted to the Eastern district hospital in Duke Street and in September 1904 to the Western district hospital at Oakbank. Dr. Core the medical officer at Barnhill became the medical superintendent of Stobhill and Dr. Johnston of the City poorhouse became medical superintendent of the two district hospitals. The City poorhouse was sold to the Calédonian Railway Co. for £90,000. Barnhill remained the poorhouse of the parish of Glasgow, accommodating those who did not require active medical treatment and who were able to work. It had hospital wards for sick inmates and also V.D. and scabies wards. The less seriously sick of bad character, malingerers, and pregnant women awaiting confinement were also sent to Barnhill (G.C.A. D HEW 1 2 14, p.786).

(vi) Poorhouse Nursing

At a time when the medical treatments available were largely ineffective and drugs were of little therapeutic value the general care that patients received in hospital wards was one of the major factors contributing to their recovery. Hence the standard of nursing care that was provided was of great importance. Any marked improvement in nursing might well contribute to an improvement in hospital mortality rates. Nursing in the voluntary hospitals had already been reformed and schemes of nurse training introduced in voluntary hospitals throughout the country and in the Glasgow infirmaries. An improvement in the standard of nursing provided in poorhouses was urgently required as nurses there were not only untrained but were drawn from women inmates of the poorhouse. These women were uneducated, often drunken, hardened by institutional life, and totally unsuited to perform tasks that required conscientiousness, care, skill, and compassion. From the frequent complaints made by medical staff about the nurses it is clear that they could not be relied upon to carry out instructions and this was obviously a serious obstacle to the proper treatment of the sick. In addition they did not possess the skills required to carry out nursing procedure.

Not surprisingly there were constant criticisms of the behaviour of pauper nurses. The medical officer of the City poorhouse remarked in the spring of 1870 that he had found a number of the pauper nurses to be, "unsuitable, untrustworthy, in fact, in all respects," and he hoped that, "During the summer, by the probable reduction in the number of sick, the services of some of the worst may be dispensed with" (1). A few years later, however, another medical officer remarked that "His own experience

1. G.C.A. D HEW 1 3 3, p.208.

of the system enabled him to say that it was radically bad. The only inducement these women had, was the small extra allowance granted to them, and of learning their duties, and performing them, they cared nothing" (1).

In the 1860's some of the pauper nurses in the City poorhouse had been found to be unable to read and although literacy was considered to be "a very necessary qualification" (2) some twenty-five years later it was noted that several of the nurses were totally illiterate and others, while able to read, could not write (3). The twenty copies of Florence Nightingale's Notes on Nursing which the House Committee ordered in 1866 were presumably for the benefit of those pauper nurses who were able to read (4). At this time poorhouse nursing seems to have been regarded primarily as a sort of domestic work, and "The question as to whether pauper nurses could read or write was never so much considered as their ability to clean or scrub" (5).

It was important of course that nurses should be literate as they had to administer medicines. Indeed a committee at City poorhouse recommended in 1866 that pauper nurses should be able to read and that they should confine their work in the sick wards to caring for the sick, leaving others to do the scrubbing and cleaning (6). In 1890, at the time when City parish was considering whether trained nurses should be employed in the poorhouse, there were ten day nurses and eight night nurses, all pauper inmates, in both the male and the female hospital (7). It is unclear how many pauper nurses were employed at Barnhill but shortly

1. Dr. John Barlow at the 7th Meeting of the Medico Chirurgical Society, Glasgow Medical Journal, VIII (1876), 276.
2. G.C.A. D HEW 1 3 2, p.105.
3. G.C.A. D HEW 1 3 9, pp. 234 & 236.
4. G.C.A. D HEW 1 3 2, p.137.
5. G.C.A. D HEW 1 3 9, p.238.
6. G.C.A. D HEW 1 3 2, p.105.
7. G.C.A. D HEW 1 3 9, p.234.

before a staff of trained nurses was engaged in 1880 there were seven untrained but paid nurses working in the sick wards (1).

In the absence of effective drugs medical treatment at this time relied heavily on the use of alcoholic "stimulants" and so called dietary "extras", such things as steak, beef tea, eggs, extra milk, sugar, butter, arrowroot etc., which were prescribed in the poorhouse for sick patients in addition to the regular sick diet. The medical officers had to spend a considerable amount of their time entering these extras in a ward Diet Book (2) and keeping records to check, "upon Nurses drawing duplicate supplies for the same patient as there is reason to believe has often been done" (3). Examples of the type of extras and stimulants prescribed in the sick wards of Barnhill poorhouse on 12 November 1874 in addition to the sick diet are 2 oz. of whisky and 1/4 lb of steak for a male patient with Bright's disease; 2 oz of whisky for a patient with cardiac disease and bronchitis; 1/4 lb steak and 2 oz whisky for a patient with pulmonary tuberculosis; 8 oz fish and 4 oz of gin for a male patient with cardiac disease and pulmonary tuberculosis; and 1 pint porter and 1/4 lb of steak for a woman patient with bronchitis and debility (4). As all these extras were cooked in the wards the temptation to pauper nurses to pilfer patients' food to relieve their own monotonous diet must have been considerable (5).

The scandal roused by the death of a sick pauper from neglect in Holborn Workhouse in 1864 had led the English Local Government Board to circularize the metropolitan boards of guardians advising them to employ

1. G.C.A. D HEW 2 7 12, 11 Jan. 1880.
2. G.C.A. D HEW 2 7 9, 8 Aug. 1870.
3. *ibid.* 6 Feb. 1871.
4. G.C.A. D HEW 2 7 10, pp.415-7.
5. *ibid.* p.427.

trained nurses and discontinue the use of pauper inmates to nurse the sick ⁽¹⁾. The publication of The Lancet Report on Workhouse Infirmaries in 1866 confirmed the need for improvements in poor law nursing and pressure groups developed which pressed for reform. In 1897 the English L.G.B. prohibited pauper nursing.

In Scotland reform came more slowly and an inspecting officer of the Board of Supervision was instrumental in getting paid, trained nurses employed in poorhouse sick wards. In 1866 the medical officer at Barnhill asked that two paid, not pauper nurses should be employed ⁽²⁾ and in September of the same year he presented a Report on Sick Nursing to the House Committee, "more to remind you than convince you of the necessity for a trained responsible paid Nurse, that can undertake the general superintendence of the nursing by paupers, and see that the legitimate instructions of your medical officers are carried out in that intelligent manner now insisted on everywhere" ⁽³⁾.

He suggested that two nurses should be engaged, one for the male and one for the female departments of the house. This suggestion was adopted, the positions were advertised, and a male and a female nurse appointed ⁽⁴⁾. In the same year two paid (but untrained) nurses were appointed in the City poorhouse to care for the more seriously ill patients. These paid nurses proved to be "efficient and trustworthy" and, the City poorhouse medical officer remarked, "Their appointment has wrought out, as it were

1. Poor Law Board circular to the metropolitan guardians, 5 May 1865 (P.P. 1866, LXI), p.457, and see G. Ayres, England's First State Hospitals (1971), pp. 6 & 7.
2. G.C.A. D HEW 2 7 8, 27 Aug. 1866.
3. *ibid.* 24 Sept. 1866.
4. *ibid.* 20 Jan. 1867. The man was paid £26 p.a. and the woman £17 p.a.

in relief, the deficiencies of some of the Inmate Nurses, to a greater extent than formerly" (1).

The male nurse at Barnhill was responsible for the state of health of the patients in the male sick wards, calling the doctor when required, accompanying the doctor on his daily round and taking his instructions as to treatment, medicine and cordials. He was responsible for the cleanliness of the hospital, the bedding and clothing of the patients, and for bathing the patients when this was ordered. In addition he visited Infirm wards in the Male department of the house and reported on any patient who appeared to require medical attention. Though he took his orders from the medical officer, he was "under the entire control of the Governor" (2). The other nurse had similar duties in the women's sick wards and, in addition, she prepared special diets when these were ordered.

For several years this was the extent of paid nursing in the Glasgow poorhouses. The first reference that the Board of Supervision make to nursing in poorhouses occurred when the Board's visiting officer Malcolm McNeill was inspecting the Barnhill fever hospital in the autumn of 1870. On this occasion he commented that the condition of the hospital, "appeared to me clearly to show the expediency of appointing trained nurses to superintend the arrangements by day and night" (3). The parochial authorities appear to have taken this advice as soon after they appointed a matron for the fever hospital (4). She supervised the

1. G.C.A. D HEW 1 3 2, p.149. Paid nurses unlike pauper nurses, required accommodation that was separate from the wards. At Barnhill it was suggested that the seclusion rooms of the asylum might be suitable (G.C.A. D HEW 2 7 8, 23 April 1867) but the Board of Lunacy objected (ibid. 3 June 1867) and eventually cubicles at the ends of two of the sick wards were made for the nurses (ibid.).
2. G.C.A. D HEW 2 7 9, 31 Oct. 1870.
3. ibid. 28 Nov. 1870.
4. ibid. 12 Dec. 1870. She was paid £40 p.a. but it is not clear whether she was a trained nurse. This lady, a Mrs. Sinclair, subsequently became matron of the City Fever Hospital, see below p. 250.

pauper nurses, who were selected from the inmates by the Governor, and who did alternate fortnights of day and night duty in the fever wards for which they were paid 3s. a week plus extra diet (1).

The two paid nurses in the main hospital wards (who were now usually both women) attended not only the 160-180 hospital patients but also the patients in the infirm wards. They superintended the issue of alcoholic stimulants, gave the medicines, and did the less complicated surgical dressings leaving the more difficult ones to the medical officer and his assistant. But this was not an ideal situation for as the medical officer noted in the mid-1870's "the tendance of the sick

is necessarily in the hands of inmates who are quite cognisant (sic) of the meaning of nursing and unfit for its duties. Besides, they are frequently persons of bad character".

He concluded that lately nursing had been reformed in many hospitals and urged "the necessity of remodelling the nursing department of the Barony Hospital if the Hospital service is to be satisfactorily performed". A hospital the size of Barony required not only an efficient medical staff but also "an efficient nursing staff placed under the sole direction and control of the Medical men" (2).

As the new Barony Asylum at Woodilee, Lenzie, was approaching completion in 1875, plans were made to rearrange the wards that were vacated by the lunatics at Barnhill. The parochial authorities noted at this time the great changes that had been introduced in London in the administration of poorhouse medical and nursing care by the Metropolitan

1. G.C.A. D HEW
279, 23 Jan. 1871.
2. G.C.A. D HEW 2710, p.428.

Poor Act of 1867 and that these should be investigated before any changes were made at Barnhill (1). A sub-committee duly went to London and began their investigation by meeting officers of the L.G.B. who advised on the best institutions to visit. The sub-committee visited the hospital of Stepney and Poplar at Bow, St. Luke's, Chelsea, and the St. Pancras, St. Giles and Strand Sick Asylum at Highgate. They found that the Stepney House was like a poorhouse for the sick without a House Governor. Here the medical officer reigned supreme and there was no pauper labour; the nursing was done entirely by trained nurses and the cleaning by paid labour. St. Luke's Chelsea was a hospital in the grounds of a workhouse in which the medical officer ran the hospital and was also medical officer to the workhouse. Finally, the sub-committee visited the Sick Asylum at Highgate where they found that the medical officer had charge of the patients, a steward controlled the books, and the Matron, "herself being one of the Nightingale Nurses" controlled the nurses.

On its return the sub-committee reported its findings and their relevance to the Glasgow poorhouses. It noted that legislation would probably be required to empower the Board of Supervision to allow parochial boards to combine for hospital purposes, as their English counterparts could (2). It suggested that meantime the three Glasgow parishes should co-operate in classifying the poor and use the three Glasgow poorhouses, one with trained nurses and a medical superintendent for the sick poor, one for the aged and infirm, and one for the dissolute. It concluded that any further additions to the buildings at Barnhill would

1. G.C.A. D HEW 2 7 10, p.594.

2. The Board of Supervision had no powers to combine parishes for Poor Law purposes. This could be done, subject to the Board's approval, by agreement between parishes at a local level. In England parishes were united by the central poor law authority before Boards of Guardians were established. A. Paterson, "A study of the poor relief administration in Edinburgh City Parish, between 1845-92" p.13 (unpublished Ph.D. thesis, University of Edinburgh, 1973).

be unsatisfactory, that the sick should be treated in a hospital separated from the poorhouse under the charge of a medical superintendent, and that the nursing, "should be by skilled paid nurses, and the cleaning, washing, and other similar work (be) by paid and non-resident workers"⁽¹⁾. The response of the Board of Supervision to this report was guarded; it would be glad to help, "the endeavours of the Parochial Board for improving the classification, discipline, and treatment of the inmates, as far as they may be consistent with the existing Law"⁽²⁾. No action seems to have been taken on this report, however, presumably because of the cost and the administrative difficulties involved. It was only after the amalgamation of City and Barony parishes in 1898, on an order issued by the Secretary of State for Scotland under powers given by the Local Government (Scotland) Act of 1894 on an application made by representatives of City parish, that separate hospitals for the sick were built which were run by medical superintendents and trained nurses. Only then was the proper classification of the poor achieved.

In a report on nursing in Barnhill hospital in 1878 Dr. Core the new medical officer ⁽³⁾, aware that some members of the House Committee wanted the nursing at Barnhill improved, suggested that a limited system of paid nursing should be introduced in the sick wards. A minimum of four paid day nurses and two paid night nurses would be required for the 168 patients in the sick wards and one paid nurse for the sick children ⁽⁴⁾. He estimated that this would cost some £175-200 each year. It was agreed that two paid nurses should be appointed at once. Thus the way was being prepared at Barnhill for the introduction

1. G.C.A. D HEW 2 7 11, pp.16-29.

2. S.R.O. HH/23/17, 25 Nov. 1875.

3. Dr. Core was appointed M.O. at Barnhill in 1876 and remained there until he became the first medical superintendent at Stobhill.

4. G.C.A. D HEW 2 7 11, 25 March 1878.

of trained nurses into the sick wards of the poorhouse; by 1880 seven paid but untrained nurses were employed.

In his half-yearly report to the Board of Supervision in June 1876 the Board's visiting officer Malcolm McNeill had noted that poorhouse hospitals were treating the same sort of medical and surgical cases as the voluntary hospitals where, "the very highest nursing skill is now employed" and that it was difficult to justify the continued use of pauper sick nurses ⁽¹⁾. In his report in 1878 he made a strong plea for an improvement in Scottish poorhouse nursing. He pointed out that the nursing in Scottish poorhouse hospitals was falling more and more behind that provided in English Poor Law institutions and other hospitals. It was a principle of hospital management that a patient with a curable disease should have skilled nursing irrespective of his social or legal position. General infirmary patients and pauper lunatics were given special care and sick and bed-ridden paupers required similar considerations. The infirmary patient was receiving charity while the pauper "is the recipient of a legal provision for his relief - dealt out to him in an establishment under Government supervision"; and sick and bed-ridden paupers had as much need of good nursing as patients in voluntary infirmaries ⁽²⁾.

McNeill argued that paupers could be trained as nurses. "If probationers were drawn from the poor's roll there would be a direct saving to the parish". He was informed on "high authority" that a woman could be taught to be of use as a nurse in three or six months, "she can be drilled in regular habits, promptitude, tidiness, obedience to

1. 31st Ann. Rep. Board Super.... (P.P. 1876, XXXII), p.13.
2. 33rd Ann. Rep. Board Super.... (P.P. 1878, XXXVII), p.13.

medical orders, the modes of moving helpless persons, simple bandaging etc.". Yet in the year ending 14 May 1878 although there were an average 2,942 sick in Scottish poorhouses each day only three sick nurses were employed. Thus the wards in which nurses could be trained were not being used for that purpose although there were many young widows and deserted wives in poorhouses who would welcome the opportunity "of qualifying themselves to earn higher wages outside .."(1).

He concluded, however, that the financial benefit to parochial authorities was not the major consideration, "I am not disposed to lay much stress on the possibility of securing direct advantage to the parish through the training of paupers", which was merely by the way. He had witnessed, "with regret, though I cannot say with much surprise" the preference of parochial boards for measures that promised profitable results over those, "more remotely, if more widely advantageous, to say nothing of those from which no pecuniary recompense can be anticipated"(2). Nevertheless the helpless sick and dying, "should have some other attendants than ignorant, it may be drunken and dissolute paupers" (3).

McNeill was not concerned to establish that defects and abuses existed in the system of untrained pauper nursing but relied,

"simply on the uncontestable fact that sick-nursing, as now understood, is a highly skilled form of labour whose varied resources and expedients can no more originate in the minds of uninstructed persons, whether of committees, officials, or paupers, than a knowledge of law or mathematics".

1. 33rd Ann. Rep. Board Super. op.cit.
2. *ibid.*
3. *ibid.*

Well managed hospitals required their nurses to have one year's training and the medical profession did not believe "that sick-nursing is ever intuitively acquired". Finally he quotes from Miss Nightingale on the need for trained nurses, "Hired women, unless they are also trained nurses, are not worth their hire, unless by accident". The existing system had only been allowed to continue because House Committees preferred not to get involved in matters that entailed increased expenditure and changes in the status quo (1).

He suggested that a third of the cost of a system of skilled nursing for the indoor sick poor would be made available, "if some Parochial Board could be found with enough energy and determination to lead the way". Employing a few trained nurses here and there was not desirable, but rather a complete reorganisation on the lines prescribed by "the high authority" (Miss Nightingale). Here McNeill quoted Miss Nightingale, "there must be trained matrons (superintendents) to superintend the trained nurses. Every trained and organised nursing staff should, as one of its duties, undertake the training of nurses".

Nurses should be responsible to the matron and the matron to the hospital authorities (2). The system of trained nursing as laid down by Miss Nightingale seems to have been the model for nursing organisation in Scottish poorhouses as it had been in voluntary hospitals throughout the country and in the larger English poorhouses.

Malcolm McNeill, the Board of Supervision's visiting officer, presented this report in 1878, the last year in which his uncle, Sir

1. 33rd Ann. Rep. Board Super.... op.cit.

2. *ibid.*

John McNeill, presided as Chairman of the Board. Sir John had become a friend of Florence Nightingale when he was engaged in an enquiry into the British Army's Commissariat Department in the Crimea. He remained a friend and correspondent of Miss Nightingale and she stayed with his family at their Edinburgh home ⁽¹⁾. He was, moreover, one of the nine original trustees of the Nightingale Fund. No doubt some of the impetus for improving poorhouse nursing came from Sir John McNeill but it was his nephew, Malcolm McNeill, who pressed for the employment of trained nurses in Scottish poorhouses, from his position as visiting officer of the Board of Supervision and later as Chairman of the Board and the first Vice-president of the Local Government Board ⁽²⁾.

The Board of Supervision had sent Malcolm McNeill to visit English workhouses and report on their nursing arrangements in the autumn of 1878 and his report ⁽³⁾ provided the basis of the Board's Circular Letter Respecting Sick Nursing in Poorhouses which was issued in July 1879 ⁽⁴⁾. The Circular made various recommendations including one specifying that poorhouses with a daily number of sick exceeding 60 should have a head nurse and an assistant nurse for every 20 patients. The Barony House Committee considered the Circular in August ⁽⁵⁾, and appointed a sub-committee to consider poorhouse nursing which reported in early October ⁽⁶⁾.

1. Florence McAlister, Memoir of Sir John McNeill (1910), pp.403 & 405.
2. Malcolm McNeill, 1839-1919, son of Sir John's brother Captain Alexander McNeill of Colonsay, Gigha and Ardussa, see B. Burke, A Geneological and Heraldic History of the Landed Gentry of Great Britain and Ireland (1875), p.864. He was orphaned as a boy (McAlister, op.cit. p.291) and was educated at Eton and Sandhurst; served in the army and joined the Board of Supervision in 1867, see Poor Law and Local Government Magazine, 14 (1904), 468.
3. S.R.O. HH/23/18, 31 Oct. and 26 Dec. 1878.
4. 34th Ann. Rep. Board Super.... (P.P. 1879, XXX).
5. G.C.A. D HEW 2 7 11, 11 Aug. 1879.
6. *ibid.* Oct. 6 1879.

The sub-committee visited the Western Infirmary, Glasgow, and the Royal Infirmary in Edinburgh to investigate nursing arrangements. The Western Infirmary had opened in 1874 and the Edinburgh Royal Infirmary was about the move into a new building and both, therefore, represented the most modern nursing organisation. At the Western Infirmary the medical superintendent explained how the nursing was organised under a Lady Superintendent with a staff of thirty trained nurses and probationers. Fifteen nurses were on day and fifteen on night duty, and one trained nurse with one probationer was in charge of a ward of twenty patients. The committee was shown round and advised by the medical superintendent that the first step in introducing a system of trained nursing was to appoint a Lady Superintendent or Head Nurse to whom all the nurses would be responsible (1).

At the Edinburgh Royal Infirmary the committee met the Lady Superintendent Miss Pringle who advised that the nursing system in use at the Infirmary was not entirely appropriate for Barnhill and suggested that the system in use at Highgate Infirmary was a more useful model (2). Miss Pringle did recommend, however, that the first step was to appoint a Lady Superintendent and let her appoint a staff of nurses which would be entirely under her control. A key factor in improving nursing was the appointment of a qualified matron (or Lady Superintendent) and sisters, as well as the provision of proper living accommodation for the nurses (3) and this was obviously recognised at the time. The sub-committee had concluded that a visit should be made to St. Thomas' Hospital or to the Highgate Infirmary as "the system to be introduced in Scotland, are based on that in England - the system there should be seen

1. G.C.A. D HEW 2 7 11, Oct 6 1879.
2. Miss Pringle had trained at St. Thomas's Hospital, London and "conducts her arrangements on the Nightingale principle or as Miss Jones conducts the Liverpool Workhouse".
3. Abel-Smith, op.cit. p.98.

and reported on" (1). Accordingly, two members of the parochial board and Dr. Core were delegated to visit London.

The delegation visited the Highgate Infirmary which had a nursing staff of trained day and untrained night nurses. Each day nurse had charge of a thirty-bedded ward and the hospital also had probationer nurses in training working in the wards. On their return the delegation recommended that the Highgate nursing system should be the model for the future system of nursing at Barnhill (2). Initially only four additional nurses would be required, one of whom would be the Head Nurse, and the paid nurses at present employed would be replaced at "no more cost". It was estimated that the cost of the new nursing staff of head nurse, four trained nurses, and four untrained nurses would be little more than the existing staff of untrained nurses. At the end of December 1879 these recommendations were approved.

The Board of Supervision expressed "great satisfaction" on receiving a copy of these proposals (3) and Dr. Littlejohn described them as "the first step in a great movement for benefiting the sick poor on the roll" (4). Clearly Barony was the parochial board with the "energy and determination to lead the way" that Malcolm McNeill had called for. The Board of Supervision issued "rules and Regulations for the Management of Hospitals and Infirmeries where a trained nurse or Lady Superintendent is Employed" which made it clear that the Board had to approve the appointment of proposed Lady Superintendents and it also laid down rules to ensure that there would be no confusion about the position of trained nurses within the hierarchy of the poorhouse (5).

1. G.C.A. D HEW 2 7 11, 6 Oct. 1879.
2. *ibid.* 8 Dec. 1879.
3. S.R.O. HH/23/18 Jan. 8 1880.
4. G.C.A. D HEW 2 7 12, 19 Jan. 1880.
5. 35th Ann. Rep. Board Super.... (P.P. 1880, XXVIII).

The position of Lady Superintendent at Barnhill was advertised and a short list of seven candidates was made up from the thirty applicants. A sub-committee was appointed to see these ladies at their work, "with a view to ascertain the nature of their qualifications and character" (1). The committee visited the candidates at their various hospitals and selected Miss Augusta Pigott, then in charge of Addison Wards at Guy's Hospital, London. Miss Pigott was clearly from an eminently respectable middle-class family, her father and her two brothers were Church of England clergymen. She was recommended, moreover, by Dr. Steele at Guy's "a decided and clearheaded Scotchman" who had been medical superintendent of the Glasgow Royal Infirmary (2), by Miss Butt the Matron of Guy's, and by the Lady Superintendent of the Highgate Infirmary (3).

When Miss Pigott was appointed Lady Superintendent at Barnhill she became entirely responsible for the running of the hospital; she could appoint and suspend the nurses and she was responsible for the pauper assistants who did the cleaning, while they were in the wards. In addition she had to see that the medical officers' directions were carried out. Yet she was responsible only to the House Committee and House Governor, not to the medical officer. Thus the lay administrator of the poorhouse continued to exercise overall control of the hospital.

With the introduction of trained nurses into the hospital at Barnhill the hospital began to take on the appearance of any other

1. G.C.A. D HEW 2 7 12, 15 March 1880.
2. G.C.A. D HEW 2 7 12, 26 April 1880.
3. While in London the committee saw Mrs. Wardroper, the matron of St. Thomas', who expressed her interest and offered to provide any information the committee might request, "in course of setting the Nightingale system agoing". She would mention the matter to Florence Nightingale, "who she is certain would be much pleased to advise us, as to the details of our Hospitals in relation to the system which is being generally adopted over England and the Colonies". G.C.A. D HEW 2 7 12. There is no evidence that Barony parochial board ever consulted Miss Nightingale.

general hospital although physical conditions in the wards remained poor. A member of the House Committee presented the hospital with an operating table; "Greater facilities are thus afforded as in the treatment of surgical cases and the custom of operating in the wards is no longer necessary", Dr. Core noted hopefully (1).

The next step was to train nurses at Barnhill. Although at first there is a mention of training suitable women from the outdoor roll to provide them with a means of earning their own living, as McNeill had suggested, this came to nothing. It was evident that women who had actually been inmates of a poorhouse were unsuitable, they used foul language and, "Residence in a poorhouse seems to degrade and demoralize". Thus training paupers, "would not tend to elevate the general tone of the Wards" (2), and this, after all, was why trained middle-class women had been brought in as nurses. The first probationers were engaged early in 1881 and there is no evidence that any of them had been on outdoor relief (3). Indeed McNeill urged that the nurses should be given better accommodation as their present rooms tended to repel "persons of the more educated and refined classes" (4) and he later remarked favourably on the completion of a recreation room for the nurses as, "Attention to the comfort of the nurses tends directly to attract a superior and more educated class" (5). Clearly these improvements were made to attract educated women, not paupers, to work as probationers and nurses. At a time when there were few careers open to women, there was no difficulty in getting suitable candidates as probationer nurses

1. G.C.A. D HEW 2 7 12, 25 Oct. 1880.
2. *ibid.* 22 Jan. 1881.
3. *ibid.* 14 Feb. 1881.
4. G.C.A. D HEW 2 7 14, p.245.
5. G.C.A. D HEW 2 7 15, p.187.

(who were paid during their training). Soon they had "the pick of the best girls" and there were more applicants than could be accepted (1).

Once a system of trained nursing had been established at Barnhill McNeill pressed to get the separation between poorhouse wards and hospital made still more complete by reducing the reliance on pauper domestic labour in the hospital and eventually getting it replaced by paid labour. Obviously such a step tended to make conditions in this poor law hospital more akin to those in voluntary hospitals. McNeill encouraged the Lady Superintendent to have ward cleaning finished by 2 p.m. each day so that the paupers could return to their part of the poorhouse (2). Thereafter he pressed for the employment of non-resident, outdoor poor "scrubbers", which would reduce the need for communication between the poorhouse and hospital while at the same time raising some of the outdoor poor to support themselves and providing "a valuable outdoor test of destitution" (3). Several English workhouses employed cleaners from the outdoor roll and it was proposed that Barnhill should do the same. It is not clear, however, whether this attempt to end the use of pauper labour in the hospital at Barnhill was successful. McNeill reported later that some Scottish poorhouses had employed women on outdoor relief to do the scrubbing in the sick wards, but it was found that they soon took themselves off the roll of outdoor poor since, "they thought if they could work every day for the infirmary they might as well work for people outside" (4).

There was much less enthusiasm for introducing trained nurses at the City poorhouse (5). McNeill had remarked in 1877 that a poorhouse

1. Barclay, evidence to Departmental Committee on Nursing of Sick Poor in Workhouses (P.P. 1902, XXXIX), Q.229.
2. G.C.A. D HEW 2 7 14, pp.302 & 317.
3. G.C.A. D HEW 2 7 15, p.284.
4. McNeill, evidence, D.C. on Nurs.... (P.P. 1902, XXXIX), Q.375.
5. Probably because of the financial state of the parish, see above, p.176.

the size of the City poorhouse should be a nurse training school, that pauper nursing should be abolished, and he referred the House Committee to his recent report (1). This suggestion was not well received on the grounds that there was no accommodation for paid nurses in the poorhouse, that paid nurses would be expensive, and that the existing system of pauper nursing had continued for years "without any serious detriment to the interests of the Institution" (2). The interests of the patients do not seem to have been considered. Only after the introduction of the Medical Grant for trained nursing in the early 1880's was the matter again considered and again rejected (3).

In 1885 McNeill had tried once more to persuade the City parochial authorities. At this time only two paid nurses were employed and he suggested that at least twenty-five were required. The House Committee, however, again expressed their satisfaction with existing arrangements (4). The medical officer's suggestion that at least a Lady Superintendent should be appointed to be in charge of such nurses as there were, fell on deaf ears (5). In May of the same year the House Committee decided not to comply with the Board of Supervision's Circular on Trained Nursing (6) and it was not until 1890 that the matter was again considered. On this occasion the matter was raised by Dr. Lapraik, a member of the House Committee, and as a result a sub-committee was set up to investigate the situation in other poorhouses (7). Members of the committee visited Barony poorhouse and the two Edinburgh poorhouses and obtained details of the nursing arrangements in most of the other large Scottish poorhouses. They concluded that the City of Glasgow Parochial Board

1. G.C.A. D HEW 1 3 5, p.248.

2. *ibid.* p.267.

3. On the Medical Relief Grant, see above, p. 160.

4. G.C.A. D HEW 1 3 7, p.315.

5. *ibid.* p.320.

6. *ibid.* p.364. The decision was opposed by one member, Dr. Muir.

7. G.C.A. D HEW 1 3 9, p.200.

was, "lagging behind other Boards of smaller magnitude and importance". The committee did recognize, "the superiority of a trained to a pauper nurse to attend the sick poor" (1) but would not recommend the introduction of a complete scheme of trained nursing because of the lack of accommodation for the nurses. It was therefore suggested that a head nurse, ten trained nurses, and five probationers should be appointed at first (2). In the first instance only a head nurse and five trained nurses were appointed which was not sufficient to qualify for the Medical Relief Grant (3). The decision to increase the nursing staff in order to qualify for the Grant was made only in January 1892 (4) and the Board of Supervision then agreed that City Parish qualified for a share in the Grant in Aid of Sick Nursing (5).

In August 1882 the Board of Supervision was informed that in accordance with the Chancellor of the Exchequer's financial statement of the 24th April a supplementary grant of £10,000 was to be made annually in addition to the annual Medical Relief Grant of £10,000 (6). Earlier the Board had pointed out to the Treasury that the anomalies of the existing medical relief scheme could be resolved at an annual cost of £8-10,000 (7). Now it was proposed that the entire increased Medical Relief Grant of £20,000 should be distributed, not on the basis of population, but on the basis of the actual expenditure of a parish on medical relief (8). Clearly such an arrangement was to the advantage of parishes like Barony which spent considerably more than the average on medical relief.

1. G.C.A. D HEW

1 3 9, p.243.

2. *ibid.*, and Glasgow Herald June 4 1890.

3. G.C.A. D HEW 1 3 10, p.156.

4. *ibid.* The decision was made on a motion introduced by Dr. Lapraik.

5. *ibid.* p.266. In September of that year.

6. S.R.O. HH/23/19, Aug. 3 1882.

7. S.R.O. HH/23/16, 11 March 1875, Board of Supervision Minute to the Treasury.

8. 37th Ann. Rep. Board Super.... (P.P. 1885, XXXI), p.15.

In January 1885 the Inspector of Barony parish wrote to the Board of Supervision asking that the cost of trained sick nursing in poorhouse hospitals should qualify for inclusion in claims for the Medical Relief Grant. Malcolm McNeill had already prepared a draft of proposed alterations to the relevant rule and this was duly submitted to the Home Secretary for his approval ⁽¹⁾. The Home Secretary assented to the alteration to Rule V of the Rules as to Medical Relief thus enabling the cost of trained nursing in poorhouses, as approved by the Board of Supervision to be chargeable as Medical Relief. The Board then circulated a Minute on Trained Sick Nursing to poorhouse governors which was to be submitted to the House Committees who were then to decide whether they were prepared to fulfil the conditions which would allow the cost of trained nurses to be claimed from the Medical Relief Grant ⁽²⁾. The Minute specified that half the salary of each trained nurse plus 3s. a week for her rations, maintenance and uniform would be paid from the Grant for each approved trained nurse. A recognised trained nurse must have spent at least two years in a public hospital with a training school for nurses and a resident physician or surgeon; she should be at least 22 years of age and not over 45 years when first registered. The names of nurses who fulfilled these conditions could be entered in the Board's Register of Trained Nurses and only nurses on this register were eligible for inclusion in a claim against the Medical Relief Grant. The Minute specified the number of nurses to be employed in relation to the daily number of sick in the poorhouse (where the number was over 60 the ratio was one nurse for every 30 patients) and that in poorhouses

1. S.R.O. HH/23/20, 29 Jan. 1885.

2. 40th Ann. Rep. Board Super.... (P.P. 1885, XXXIV), pp.20-1.

in which there was a head nurse the Rules set out in the Board's Circular of April 1880 should come into effect (1).

Thus the Board of Supervision, largely at the instigation of its visiting officer Malcolm McNeill (who was acting on a suggestion made by his colleague R.B. Barclay (2)) used the increased Grant in Aid of Medical Relief to encourage the introduction of trained nurses into Scottish poorhouse hospitals. McNeill's reports of 1876 and 1878, the first official reference to defects in the nursing provided in poor law sick wards, led to the Board of Supervision's Circular of 1879, the Rules and Regulations issued by the Board in 1880, and subsequently to the Circular of 1885 which McNeill regarded as the "first real step forward" (3). Thus, although the Board of Supervision lacked the power to make mandatory orders to Parochial authorities, it used its power to make regulations for poorhouses, and the conditions it could attach to participation in the Medical Relief Grant to bring about improvements and reform. By 1902 28 Scottish poorhouses, including most of the larger ones, had a system of trained nursing in their sick wards (4). Pauper nurses continued to be employed in the smaller poorhouses, however. Miss E.S. Haldane pressed the L.G.B. to end pauper nursing altogether but this was not possible under existing legislation (5). For as Malcolm McNeill noted in a letter to Miss Haldane in 1901, a Poor Law

1. 40th Ann. Rep. Board Super., op.cit.
2. National Library (hereafter N.L.) Miss E.S. Haldane's Papers, MS 6045, fo.25. Barclay the L.G.B. General Superintendent, noted in 1901 "Mr. McNeill will remember that it was I who first proposed the giving of a Grant in aid of sick nursing in Poorhouses in order to encourage Committees to employ trained nurses".
3. D.C. on Nurs.... (P.P. 1902, XXXIX), Q.195.
4. *ibid.* p.203.
5. Daughter of R. Haldane of Cloan, Auchterader, sister of J.S. Haldane and Viscount Haldane. She was concerned with hospital and nursing reform and with maternity and child welfare; she was the first woman J.P. in Scotland.

(Omnibus) Amendment Bill was required to remove the "absurd stereotype said to be imposed by Sec.22 (4) Local Government Act 1899 . . . As it is we can alter nothing in our Rules for Medical Relief or in the conditions of the Trained Nursing Grant" (1).

In the following year a Medical Relief Bill was introduced that would have dealt with this matter but this was subsequently withdrawn and the Departmental Committee on Poor Law Medical Relief (Scotland) was set up to enquire into the administration of Poor Law medical relief in Scotland and trained sick nursing. This committee recommended that untrained pauper nursing should be abolished (it had been prohibited in English workhouses in 1897) (2).

Barony parish had pioneered the employment of trained nurses and its example was followed, somewhat tardily, by City parish; pauper nursing assistants continued to be used in the City hospital wards for some time and only in 1900, at the suggestion of R.B. Barclay, the L.G.B. General Superintendent, were trained nurses employed in the hospital wards in the North Building (3). The third Glasgow poorhouse, at Govan, introduced trained nurses into its hospital in 1890 (4).

The relative number of nurses to patients in poor law hospitals, however, was much lower than in the voluntary hospitals. Voluntary hospitals had (on average) one nurse to every three patients, whereas in the larger London poor law infirmaries the proportion was one nurse to eight or nine patients. In order to qualify for the Grant in Aid of

1. N.L. Haldane M.S. 6017, fo.43. Section 22 of the Local Government (Scotland) Act, 1889 (52 & 53 Vict. c.50) laid down that £20,000 should be distributed to parochial boards "as a contribution to the cost of Poor Law medical relief and sick nursing in poorhouses, in like manner and according to the like scale and regulations, as nearly as may be, as in the financial year ending 31 March 1889".
2. See above, p. 189.
3. G.C.A. D HEW 1 2 8, p. 429.
4. S.R.O. HH/23/22 14 Aug. 1890.

Sick Nursing Scottish poor law hospitals had only to employ a lady superintendent and nurses in the proportion of one to thirty patients and this was the ratio maintained in the Glasgow poorhouses by the turn of the century (1). Thus the effects of improvements in the nursing in Glasgow poorhouse hospital wards must have been less marked than the improvements that took place in this period in the standard of nursing in the voluntary hospitals.

1. N.L. Haldane Papers, MS 6045, fos.48-9.

Nurse Training in Glasgow poorhouses: The cost of probationer nurses did not qualify for a share in the Medical Relief Grant, yet at Barnhill probationer nurses undertook much of the nursing. They worked under the supervision of a trained nurse on day and on night duty, seeing medical and surgical cases, and working in the maternity wards. They also attended two six month sessions of twice weekly lectures from the medical officer. Thus Barnhill probationers had a more varied training than nurses in the city's voluntary hospitals and the fact that the hospital trained nurses for the Derby Institute of Trained Nurses and the Jubilee Institute in Edinburgh (G.C.A. D HEW 2 7 16, p.193) and that other nursing associations (namely the Sunderland Nursing Institute, 26 March 1890; Royal Scottish Nursing Institution, 1 June 1892; Glasgow Sick Poor and Private Nursing Association 14 March 1894; Private Nursing Home, Berkley St., 24 March 1894) indicates that the training given at Barnhill was widely well regarded. The City poorhouse also had a scheme of nurse training (Minutes of Evidence D.C.... (P.P. 1904, XXXIII), Q.842). Nevertheless the Board of Supervision was unable to alter the conditions under which the Trained Sick Nursing Grant was distributed (G.C.A. D HEW 2 7 16, p.415) to support the training of probationer nurses.

Nurse training developed further when the hospitals of the two poorhouses moved into the three new parish hospitals. Subsequently the L.G.B. laid down a syllabus of training which led to an examination organised by the L.G.B. and an L.G.B. Certificate of Efficiency (12th Ann. Rep. Loc. Gov.... (P.P. 1907, XXX), p.10). The Departmental Committee on Medical Relief had recommended in 1904 that nurse training should be a charge on the Medical Relief Grant but the terms under which the Grant was allocated had not been changed by the end of our period.

(vii) Poorhouse Doctors

The problems that the doctors encountered constantly in carrying out their duties obviously must be considered when attempting to assess the value of the medical treatment provided in poorhouse hospital wards.

Both City and Barony poorhouses each had a medical officer and an assistant medical officer; in the 1860's and '70's there was also a medical officer in charge of the fever wards at Barnhill and City poorhouse had an unqualified medical assistant who was later replaced by a second assistant medical officer. In the early years, before both parishes built new asylums in the country for their insane patients, one of the major concerns of the poorhouse medical officer was the care of the insane in the poorhouse asylum. In March 1873 (shortly before the insane at Barnhill were moved to the new Barony Asylum at Woodilee) the parochial board advertised for a new medical officer. What the board required was "a duly qualified Medical gentleman to act as

House Surgeon of Poorhouse (of) Barnhill and Medical Superintendent of the Lunatic Asylum in connection herewith A Gentleman with Hospital practice and Knowledge of the treatment of lunatics will have preference" (1).

The doctor who was appointed came from the Royal Edinburgh Lunatic Asylum. At the City poorhouse, Dr. Robertson, who was medical officer there for over twenty-five years, was also a lecturer in mental disease at the Royal Infirmary medical school and gave clinical lectures and demonstrations to medical students in the asylum wards (2).

At Barnhill the medical officer visited the probationary wards each day to examine paupers recently admitted to the house, he visited

1. G.C.A. D HEW 2 7 10, p.78. The doctor's salary was £300 p.a. plus free house, coals, gas, and water.
2. G.C.A. D HEW 1 3 8, p.144. He later became a physician at the Royal Infirmary.

the male and female hospitals on alternate days and he had to "visit cases of emergency daily or more frequently as the requirements of the case may demand", and new patients on admission ⁽¹⁾. He also saw out-patients in the poorhouse dispensary. In his turn the assistant medical officer dispensed the medicines and visited the hospital on the days on which the senior medical officer did not attend. At the City poorhouse the duties of the medical staff were very similar. The medical officer visited the wards of the Sick Hospital and the Magdalene block on five days of the week and those in the North block on the other two days.

As he reported, "Besides these general visits, I daily see all cases of serious illness immediately on their admission and prescribe for them; I examine and certify for removal all Fever Cases; and examine, take down the history, and certify all cases of Lunacy".

This last duty took a considerable time. There were also duties outside the regular routine when unusual cases were admitted to the general or lying-in wards ⁽²⁾. In the evening the medical officer examined inmates in the Probationary wards, visited cases in the hospital or asylum which required special attention, and wrote reports for the House Committee, Board of Supervision, and Board of Lunacy when these were required. The assistant medical officer examined all new cases on admission to the house and also visited the wards that the medical officer had not visited that day; the unqualified medical student assistant dispensed the medicines and helped the other doctors ⁽³⁾.

The poorhouse medical officers had to deal with many more patients than their colleagues in the voluntary hospitals, which had much larger

1. G.C.A. D HEW 2 7 10, p.128.

2. G.C.A. D HEW 1 3 3, pp.302-3.

3. *ibid.* p.304.

medical staffs, and they were often overburdened with work. A medical officer at Barnhill in the 1850's complained bitterly of being overworked (1) and an assistant M.O. at the City poorhouse in 1876 spoke of the "paucity of medical attendants. To assign 300 or 400 patients to one medical man was simply to ensure that the work could not be satisfactorily done" (2).

There were few drugs of therapeutic value available in the nineteenth century; in fact there were no drugs effective in the treatment of such common conditions as tuberculosis, bronchitis, or pneumonia. Medical men then paid much more attention to diet as a form of medical treatment than they do today. Hence their concern with the minutia of different medical "extras" (3). The importance of diet in the treatment of disease was recognised by the authorities and the Circular on Poorhouse Dietary specifies that the diet of the sick "shall be such as the medical officer shall prescribe for him, and shall enter in a book, to be kept for that purpose ..." (4). The medical officer at Barnhill noted on this matter in 1873 that most of the patients admitted into the hospital suffered from diseases of the "Asthenic type _ such as diseases of the Heart and Lungs in adults and various forms of Scrofula among children. That Medical treatment may afford any relief in such cases a nutritious diet is essential The giving of medicine in most forms of disease is only an adjunct to the other appliances for the relief of suffering ..." (5).

1. M. Mather, Thoughts and Suggestions relative to the Management of Barony Parochial Board Poorhouse (Glasgow, 1858), p.35. For a discussion of the work of medical officers in English workhouse infirmaries see R.G. Hodgekinson, The Origins of the National Health Service (1967).
2. J. Barlow, op.cit.
3. See above, p. 188.
4. 4th Ann. Rep. L.G.B. (P.P. XXXVII), Appendix A, No. 5, p.15.
5. G.C.A. D HEW 2 7 10, p.304.

The diet scale used in Scottish poorhouses throughout the nineteenth century was that specified by the Board of Supervision in 1850. In 1847 the question of poorhouse diet had been referred to Professors Allison and Christison and Dr. Davidson (all of Edinburgh) and the diet they laid down was in use until the early twentieth century ⁽¹⁾. Miss Haldane submitted evidence to the Departmental Committee on Poor Law Medical Relief in 1903 from her brother Dr. J.S. Haldane, F.R.S., who had analysed the calorific value of poorhouse diets and concluded that all the diets for adults were inadequate ⁽²⁾. In 1903 the L.G.B. issued a Circular withdrawing the diet of 1850 and substituting one drawn up by Dr. Aitcheson ⁽³⁾.

These diets were for ordinary poorhouse inmates, but it seems likely that the diets given to the sick were no more nutritious. There is little information about the diet given to the sick in the City poorhouse but there are details of a new set of sick diets that were introduced in the sick wards of the Barnhill poorhouse in 1876. Before their introduction there had been constant complaints by the House Committee of the supposed extravagance of medical officers in prescribing sick diets, stimulants, and dietary extras ⁽⁴⁾. In order to regulate matters the governor at Barnhill drew up a sick diet scale ⁽⁵⁾ which was revised by Dr. Core the new medical officer, (see over).

1. N.L. Haldane Papers, MS 6017, fos. 199 & 200, letter from Jeffrey of the L.G.B. of 24 Nov. 1902 to Miss Haldane.
2. N.L. Haldane Papers, MS 6045, fos. 57-61. The 1850 diet scale was included in the Poorhouse Rules of 1892 and the scale appears in Appendix A, No. 5 to the 4th Ann. Rep. L.G.B. (P.P. 1899, XXXVIII). Haldane was lecturer in physiology at Oxford.
3. N.L. Haldane Papers, MS 6018, fos. 3, letter from Malcolm McNeill at the L.G.B. of 26 Jan. 1903 to Miss Haldane.
4. A sub-committee had investigated the matter in 1875 and reported that the M.O. was prescribing far more medical diets than were prescribed by the M.O.'s of the Govan, City and St. Cithbert's poorhouses (G.C.A. D HEW 2 7 10, p.592). The Barnhill doctor compared the cost of keeping patients in Barony hospital with the cost of patients in the Royal Infirmarys of Edinburgh and Glasgow and argued that the cost of maintenance of patients at Barnhill was considerably less than the cost of patients in voluntary hospitals (ibid. p.404).
5. G.C.A. D HEW 2 7 11. 11 Feb. 1876.

Revised Sick Diets

Breakfast	Dinner	Supper
	No. 1 Sick Diet	
4 oz oatmeal 3/4 pint skim milk	6 oz bread 1 1/2 pint rice soup	6 oz bread 1/2 pint tea 1 oz jelly
	No. 2 Sick Diet	
4 oz bread 1/2 oz butter 1/2 pint tea	4 oz bread 6 oz steak or 1/2 lb mutton	4 oz bread 1/2 pint tea 1/2 oz jelly
	No. 3 Sick Diet	
3 oz bread 1/2 oz butter 1/2 pint tea	3 oz bread 1/2 pint beef tea	2 oz bread 1/4 oz butter 1/2 oz jelly 1/2 pint tea
	No. 4 Sick Diet	
2 oz bread 1/2 oz butter 1/2 pint tea	3 oz bread 1/2 pint beef tea	2 oz bread 1/4 oz butter 1/2 pint tea 1/2 oz. jelly
	No. 5 Sick Diet	
4 oz bread 1/2 pint sweet milk	1 pint rice & milk 4 oz bread	4 oz bread 1/2 pint sweet milk

Note: Meat to be left in rice soup; twice a week 1 lb potatoes may be substituted for the bread at dinner three times a week in Diets No. 1 and 2 (1).

These new sick diets appear to have a low protein content and were almost totally deficient in fresh vegetables and fruit; vitamins were unknown at this time, of course, and these diets lack any obvious source of vitamin C and might well have caused scurvy among the patients to whom they were given (2). There is little known about the diet of the working population at this time (3) and not a great deal about the diets provided for patients in the voluntary hospitals; according to the Barnhill M.O.

1. G.C.A. D HEW 2 7 11, 25 Sept. 1876. The diets of infirm patients were revised at about the same time (ibid. 25 Feb. 1878) with the approval of the Board of Supervision. As a result the cost-per head of diet rose but this was offset by a reduction in the amount of medical extras prescribed.
2. Potatoes are a source of vitamin C but their inclusion in the diets were only optional.
3. See below, pp.333-47.

however, in 1874 (before the sick diets in the poorhouse were revised), the ordinary diet provided in the Royal Infirmary was very similar to Diet No. 2 at Barony Hospital and the Infirmary's milk diet was analogous to Diet No. 3 at Barnhill ⁽¹⁾. Nevertheless it is evident that the diets given to the sick at Barnhill (and this may also be true of the diets of the sick at the Royal Infirmary) were quite inadequate and can have done little or nothing to hasten the recovery of the sick.

Poorhouse doctors faced other difficulties; their clinical freedom was limited since there were constraints on the treatment they could order for their patients. Medical officers naturally wanted adequate treatment for their patients while the object of poorhouse House Committees was to keep down costs. Conflicts arose over such matters as overcrowding of the wards, diet, drugs, and heating since within the poorhouse a medical officer's orders could be questioned and often overruled by the governor or House Committee. At Barony poorhouse, for example, there were frequent clashes between the medical officers and the governor. The medical officer "has no means of enforcing his views, should they happen to be at variance with those held by the Governor or the House Committee", and differences of opinion arose repeatedly between the medical officer and the officials of the poorhouse "regarding the diet and treatment of the patients which, on reaching a certain point, have too frequently been solved by the dismissal of the Surgeon" ⁽²⁾. Medical officers at Barnhill were driven to appeal to the Board of Supervision to define the position of the doctor ⁽³⁾ and the authority of the governor in the Hospital ⁽⁴⁾, while the governor could complain to the

1. G.C.A. 27 10, p.410.

2. G.C.A. D HEW 27 6, p.46. Extract from an Annual Report of the Board in Lunacy, 11 July 1859.

3. S.R.O. HH/23/12, 15 May 1866 and see Hodgekinson, op.cit. p.151 ff. on the situation in English Workhouses.

4. S.R.O. HH/23/12; 21 Dec. 1865.

House Committee that the doctor was monopolising the time of the pauper nurses, "that he had converted them into his Clerks and Messengers and were doing the work he and his Assistants ought to do all to the neglect of the inmates" (1).

The House Committee might complain that the medical officer had ordered too many sick diets or it might try to economise on the cost of drugs by instructing the medical officer to prescribe non-proprietary substitutes. The City House Committee recommended that the medical officer should prescribe "preparations of the syrup other than that of Fellow's Syrup if at all times he can see his way to follow this course" although the medical officer had reported that he could find no effective substitute (2). There might also be difficulties over such matters as the heating of the wards. Thus while the medical officer argued that the excessive number of poorhouse deaths one winter was due to the very low temperature in the house, the governor would argue to the contrary (3). It is likely that one of the reasons why medical officers welcomed the introduction of trained nurses into the hospital wards was that trained nurses were responsible to the Lady Superintendent, unlike pauper nurses who were the direct responsibility of the governor allowing him the opportunity of interfering in the hospital.

The overworked poorhouse doctor worked in extremely difficult circumstances, subject to interference in his work from the lay poorhouse governor and House Committee and to restrictions on the diets and

1. G.C.A. D HEW 2 7 10, p.391.
2. G.C.A. D HEW 1 3 9, p. 8 and D HEW 1 3 8, p.422.
3. G.C.A. D HEW 2 7 10, pp.470-4. The temperature had been as low as 38°-40° F in the infirm wards and it was believed by contemporary doctors that it was difficult to cure cases of bronchitis and other respiratory conditions unless the inside temperature was above 60°F.

and drugs he prescribed. This was frustrating doubtless but at this time few effective drugs were available and little was known about nutrition and so the concern doctors paid to diet probably did little good. The surgical treatments then available were more valuable but there is little data on surgical mortality in poorhouse hospitals. A considerable amount of surgery was carried out in these hospitals, sometimes actually in the wards. At Barnhill in the six months to June 1884, for example, over fifty operations were performed under chloroform ⁽¹⁾. Only when the poorhouse hospitals of Barony and City parishes were transferred to the three new parochial hospitals run by doctors was the anomalous position of the poorhouse medical officer in relation to the other poor law officials in the house resolved. Here too there were better facilities for surgery and for general medical care.

1. G.C.A. D HEW 2 7 13, p.537. These included the amputation of a leg at the thigh and the excision of a breast. It had been the aim of J.L. Brand, the Chairman of City parish, to provide poor law hospitals in which were run by doctors, Glasgow Herald, Jan. 20 1900.

The effectiveness of Poor Law Hospital treatment

The Glasgow poorhouse hospitals were faced with considerable problems from the time they were set up and only gradually were these problems resolved. In the early years the poorhouses found that they were under constant threat of outbreaks of epidemic diseases, an experience they shared with the Royal Infirmary. Barony parish was forced to put up a temporary wooden fever hospital at Barnhill in order to house an influx of fever cases in 1864 and the fever wards had to be extended in the relapsing fever outbreak of 1870-1. The City poorhouse usually sent fever cases to the Infirmary although it too had to open fever wards when the Infirmary was crowded. From the late 1860's, however, City parish's fever and smallpox cases were sent to the municipal City Fever Hospital which was close by in Parliamentary Road (1). At first the parish paid for patients treated in the municipal fever hospital and in the 1870 relapsing fever outbreak when the municipality agreed to provide additional fever beds the parochial boards paid for the treatment of all those who were on parochial relief lists when they contracted fever, the local authority paying for the rest (2). In 1881 the local authority ceased to distinguish between paupers and others in this matter and all cases of infectious diseases occurring in Glasgow were admitted to the municipal infectious disease hospital without charge (3).

There was also a problem of overcrowding in the hospital wards in both City and Barnhill poorhouses and in the 1880's the Board of Supervision began to press for improvements. Time and again in the ten

1. G.C.A. D HEW 1 3 3, p.265, except in 1870 when the City Fever Hospital was very crowded and a ward had to be set aside for fever cases in the poorhouse.
2. *ibid.* p.262.
3. G.C.A. D HEW 2 7 13, p.277. Only cases from within Glasgow and much of Barony parish lay outwith the municipal boundary.

years that followed Barony parochial board considered and reconsidered plans for a new self-contained hospital but this came to nothing because of the cost entailed; the parochial authorities compromised by building two cottage hospital blocks. City parish proved to be extremely intransigent in the face of numerous complaints about the overcrowding of sick wards and early in the 1880's the Board of Supervision's visiting officer suggested that City and Barony parishes should combine to provide a hospital but the City parochial authorities disagreed and considered instead a plan to build a new poorhouse outside the city; but this too came to nothing because of the expense it would involve. Only in 1898 did the two parishes amalgamate and built three hospitals for the sick of the new parish of Glasgow.

Conditions in both the City and Barony poorhouses were not designed for treating the sick. The City poorhouse was on a site in the centre of the city surrounded by smoking factory chimneys. In both poorhouses many of the rooms used as sick wards had never been intended to house the sick and they lacked ancillary treatment rooms and proper sanitary facilities; and although quite complicated surgery was performed both poorhouses lacked proper operating theatres. Conditions in the sick wards became particularly bad in winter at the time of the annual upsurge of admissions, many of them cases of respiratory disease. As a result wards were overcrowded and ward staff overburdened.

Another problem in the poorhouse sick wards was that the nurses were themselves inmates of the poorhouse, ignorant and totally untrained women who were often illiterate as well ⁽¹⁾. These women were given additional food as payment for their work, but they were notoriously

1. See above, p.186ff. for detailed discussion of poorhouse nursing.

unreliable. It was only in 1880 that a staff of paid, trained nurses was introduced in the sick wards of Barnhill poorhouse, the first such nursing staff in any Scottish poorhouse. This marked an important step in the evolution of poorhouse sick wards into hospitals that were much akin to the voluntary hospitals. Trained nurses only began to be employed in the City and Govan poorhouses in the 1890's.

Poorhouse medical officers not only had to deal with untrained pauper nurses but also with the parsimony of the parochial authorities⁽¹⁾. Poorhouse governors were ever vigilant to discover any extravagance in the doctors' prescription of sick diets and drugs and little concerned with the inadequacy of poorhouse diets or the lack of proper facilities for medical treatment and for surgery. The overworked medical officer, grateful no doubt to be employed in one of the few salaried medical jobs then available, had to manage as best he could.

With the opening of Stobhill Hospital and the Eastern and Western district hospitals in the early years of the twentieth centuries many of these problems were overcome. The sick poor in the parish of Glasgow were now entirely separated from the other indoor poor, treated in hospitals run by medical superintendents and staffed by trained nurses in buildings that had been specifically designed as hospitals. Problems still remained, however. The diet provided for all poorhouse inmates was still inadequate, low in protein and lacking vitamins. The isolation within the hospitals of patients with pulmonary tuberculosis had only just begun and the outdoor open air treatment of consumptives (then the treatment of choice for pulmonary T.B.) had barely started. Finally, the

1. See above, p.209-16 for detailed discussion of poorhouse medical officers.

government contribution to the cost of poor law medical relief remained unchanged at the level set in 1882 and as spending on indoor medical relief had increased the relative level of the government contribution towards medical care had therefore fallen.

By the beginning of the new century, therefore, conditions in the three Glasgow poorhouse hospitals had improved significantly. By 1905 the old poorhouse sick wards of Barony and City parishes had been replaced by new hospitals staffed by trained nurses and run by doctors. At Govan poorhouse too there were trained nurses in the hospital wards and a new extension to the hospital was being planned. Whether these improvements were related in any significant manner to the mortality pattern in the city is another matter.

Poorhouse medical officers had no doubt that improved nursing led to a fall in mortality in their hospital wards. In his report for the half year ending 31 December 1884 the Barnhill M.O. Dr. Core comments that the death rate was the lowest for fifteen years, "How far this is due to the increased efficiency of the nursing may be doubted by some" he notes, "but I have no hesitation in saying that it forms no mean factor in the results achieved" (1).

In 1894 the medical officer at the City poorhouse commented on the effect of the new nursing system, "The class of cases is not less severe, their numbers are greater, their diseases as deadly, but fewer die, and I fail to see any reason for this beyond the careful providence of the Committee in introducing efficient means for their comfort and care" (2).

Cure rates in Glasgow poor law hospitals did not improve, however (Table XLIV).

1. G.C.A. D HEW 2 7 14, p.78.
2. G.C.A. D HEW 1 3 11, p.155.

Table XLIV (1)

Percentage of patients cured in the Glasgow poor law hospitals.

Year	City	Barony	Govan
1861	35%	81%	63%
1865	56%	71%	63%
1870	47%	79%	61%
1875	32%	50%	61%
1880	40%	59%	32%
1885	40%	62%	39%
1890	45%	55%	42%
1895	49%	58%	44%
1900	46%	60%	41%
1905	-	42%	43%

At the City poorhouse the cure rate rose from 35% in 1861 to 46% at the turn of the century, at Barony it fell from 81% in 1861 to 42% in 1905, and at the Govan poorhouse from 63% to 43% in the same period. This seems to indicate that care and treatment was not getting more effective, but as the discussion on the annual reports of the voluntary hospitals showed the term "cured" is arbitrary and often totally meaningless (2). Despite the hopes of the medical officers death rates in the poorhouse hospitals did not fall significantly in this period (Table XLV). Even the rates in the new parish hospitals remained high from the time they opened in 1904-5 and death rates in the poor law hospitals in general seem to have been somewhat higher than those in the voluntary hospitals. Perhaps though, the difference was not as great as might be expected.

1. Sources, Ann. Reps. Board of Supervision and the L.G.B.
2. See above, p. 84.

Table XLV (1)

Death rates in the Glasgow poor law and voluntary hospitals.

Year	City	Barnhill	Govan	G.R.I.	W.I.G.	Victoria
1861	14.5%	6.8%	12.7%	10.0%		
1865	12.1%	9.7%	15.1%	11.8%		
1870	8.9%	8.5%	15.8%	8.9%		
1875	9.7%	11.3%	7.7%	11.7%	9.0%	
1880	8.0%	11.0%	12.2%	9.3%	7.4%	
1885	8.4%	9.4%	16.3%	9.8%	7.3%	
1890	7.0%	10.5%	16.2%	8.8%	8.8%	
1895	12.9%	11.8%	19.4%	9.9%	9.0%	8.9%
1900	14.6%	8.5%	19.2%	11.0%	9.9%	9.4%
1905*	14.0%	9.4% 11%	14.2%	10.6%	8.1%	10.3%
1910*	12.9%	12.3% 13.5%	12.8%	10.3%	6.8%	8.0%

* Stobhill, Eastern and Western District Hospitals.

Part of the difference between mortality rates in poor law and voluntary hospitals is explained by the fact that voluntary hospitals tended to admit acute, curable patients (particularly surgical patients) who had a good prognosis. The routine medical cases they admitted were usually limited by their subscribers' lines to a hospital stay of one month. Thereafter, "The allotted term of residence expired, many seek admission to the poorhouse" (2). It was therefore in the poorhouse that such patients died. The poor law hospitals were the last resort of those patients, often long term patients, who were rejected by the voluntary hospitals. Not surprisingly therefore, the poor law hospitals treated many more medical than surgical cases (in the City poorhouse the ratio of medical to surgical cases was 12:5 (3)) and as the poorhouse only admitted the destitute, many patients would be admitted in the last stages of disease when they were no longer able to support themselves. Dr. Core, the medical superintendent of Stobhill, commented that he seldom saw curable cases of pulmonary tuberculosis since such cases, "do not come under my notice until the disease has advanced beyond the expectation of a cure" (4). Moreover as there is no information on the ages of patients

1. Calculated from data in the annual reports of the Board of Supervision, the L.G.B. and the Glasgow voluntary hospitals.

2. Dr. Johnston (M.O. City poorhouse) evidence to D.C. on Poor Law Med. Rel... (P.P. 1904 XXXIII), p.224.

3. *ibid*, p.225.

in poorhouse and voluntary hospitals there is no way of telling whether the higher mortality rates in poorhouse hospitals merely reflects the fact that patients were older or whether it indicates that medical care was not of the same standard as that provided in the voluntary hospitals.

There is also no means of knowing whether the total number of patients given in poorhouse statistics refers to new patients or whether patients with chronic conditions would be moved into the general wards of the poorhouse as their symptoms improved and readmitted to the hospital when they relapsed. Certainly in the City poorhouse many of the cases of pulmonary tuberculosis were in the general, rather than the hospital wards (1). Perhaps the total number of admissions to the poorhouse hospitals are therefore overstated and the death rates (which relate to the hospital admissions) correspondingly understated.

It seems, first, that poorhouse hospitals did not meet the demand for hospital accommodation until the first decade of the twentieth century; second, that the proportion of patients cured did not improve over the period; and, third, hospital death rates did not improve. It therefore seems unlikely that poorhouse hospitals contributed much to the fall in mortality in this period.

The decline in Glasgow mortality was in part due to the fall in the number of deaths from the various infectious diseases, but it was the municipal fever hospitals that dealt with these cases from the 1870's.

The decline in pulmonary tuberculosis was the largest single factor in the mortality decline in Glasgow between the decades 1861-'70 and 1901-'10; another important factor was the fall in the death rate from other forms of respiratory diseases. Even although more cases of

1. G.C.A. D HEW 1 3 12, p.77. In Sept. 1896 of 122 cases of phthisis in the house only 70 were in hospital wards, the rest were in ordinary wards.

pulmonary tuberculosis and other respiratory diseases were treated in the poor law than in the voluntary hospitals these were still only a relatively small proportion of the cases that occurred in the city. If, in the absence of other data, the number of deaths from these conditions is used as an indication of the number of cases that were treated in the hospitals, it appears that in 1895, for example, that of the 1,584 deaths from pulmonary tuberculosis in Glasgow only 149 occurred in the City poorhouse ⁽¹⁾ and 38 in the Royal Infirmary and of over 4,200 deaths from other forms of respiratory diseases only 156 occurred in the City poorhouse and 56 at the Royal Infirmary. Obviously most deaths from these conditions did not take place in hospital. Indeed the bulk of the cases of pulmonary tuberculosis and other respiratory diseases probably never received any kind of in-patient hospital treatment. Moreover, the decline in mortality from respiratory diseases of all kinds was not a sudden phenomenon; there had been a steady fall from the 1870's onwards. Thus it is unlikely that a significant part of this decline was due to the recent improvement in poorhouse medical care and conditions in the City poorhouse throughout much of this period were appalling. The sick wards were overcrowded (which could not have helped patients with pulmonary T.B.), badly equipped and inadequately staffed ⁽²⁾.

It therefore seems unlikely that poorhouse hospital treatment contributed much to the fall in mortality from pulmonary tuberculosis and other respiratory diseases. Attempts to isolate cases of pulmonary tuberculosis were made only at the end of the nineteenth century. In

1. The only poorhouse hospital within the Glasgow registration district.
2. City poorhouse only began to employ trained nurses in 1890 and then in only some of the sick wards.

1896 in the City poorhouse, for example, it was proposed that patients with pulmonary tuberculosis should be segregated to prevent infection within the poorhouse ⁽¹⁾ but it was only when the new hospital at Stobhill was completed that special sanatorium wards were provided for the consumptives of the new parish of Glasgow and only a limited number of beds were available ⁽²⁾.

Administrative measures to deal with pulmonary tuberculosis came only in the twentieth century, long after the disease had been in decline. In May 1906 the Glasgow Parochial Council resolved to petition Glasgow Corporation "urging upon them the necessity of adding consumption of the lungs to the list of diseases notifiable under the Infectious Diseases (Notification) Act 1889" ⁽³⁾.

Only in 1910 was pulmonary tuberculosis made notifiable.

1. G.C.A. D HEW 1 3 12, pp.37-8. On this occasion, at the M.O. suggestion, copies of J.B. Russell's Report on the Prevention of Tuberculosis were obtained for members of the House Committee.
2. Curiously enough a sanatorium had already been built at the Woodilee Asylum as it had been found that the death rate from pulmonary T.B. among the lunatics there was four times as high as that in the general population (D HEW 1 2 15, p.55). At Stobhill further sanatorium wards were built and in 1904 the new open air treatment for pulmonary T.B. was introduced experimentally. Two tents housing twelve patients were set up in the grounds and here patients lived in all weather (D HEW 1 2 13, p.424). Within two months the M.O. reported that two of these cases had been cured and the others were healthier and stronger (ibid. p.580). Later wooden shelters were provided for consumptives undergoing open air treatment (D HEW 1 2 14, p.363) after a visit had been made to the pioneer of open air treatment, Dr. Philip, at the Victoria Hospital for Consumption, Craighleith, Edinburgh. Some cases of pulmonary T.B. were treated in the two district hospitals although this had never been intended and the Eastern district hospital lacked isolation facilities (D HEW 1 2 15, p.389).
3. G.C.A. D HEW 1 2 15, p.306, and see below, Chapter 12.

7. Municipal Fever Hospitals

Early Victorian Glasgow was swept by epidemics of typhus fever as the periodic rises in fever admissions to the Royal Infirmary indicate (1). Despite Robert Cowan's contention that fever epidemics took place not in times of economic distress but in years of unexampled prosperity (2) there does appear to have been a close association between fever and poverty, with epidemics occurring in the first half of the nineteenth century in years of economic depression (3). Fever was associated with poor environmental conditions, as Cowan had noted (4); it was nourished in the insanitary hovels of the poor and spread on unwashed bodies and vermin infested clothing. The city authorities only took action against fever when forced by events to do so (5). Only slowly were the lessons of the periodic crises learned and permanent provision made to treat large numbers of acutely ill victims of epidemic disease. Only gradually were legislative provisions enacted that empowered the municipal authorities to build and maintain permanent hospitals for infectious diseases that could be held available in readiness for an epidemic. In most English cities the Poor Law provided the

1. See above, pp. 98-103 and fever see pp. 349 ff. There are a number of sources concerning the establishment and early years of the fever hospitals: the early reports of the medical officer of Glasgow and J.B. Russell's Public Health Administration in Glasgow (Glasgow, 1905, Russell was the first medical superintendent of the fever hospital before he became M.O.H. of the city): the annual or biennial Reports of the City of Glasgow Fever Hospital 1865-72 and from 1897 onwards there is a regular series of these (giving details of the number of cases of the various diseases treated and the mortality rates and recording anything of special note that occurred); Minutes of the Fever Hospital 1867-77, 1879-82: Minutes of the Hospital Committee from 1879: Committee of Health Minutes from 1870 onwards. In addition there are occasional reports of the opening of new hospital buildings and so on.
2. Cowan (1837), op.cit. pp.12-13.
3. Brotherston, op.cit. p.59.
4. Cowan, op.cit. p.13.
5. At this time "fever" usually meant typhus fever; as Russell points out in the 1850's and '60's "Fever hospital" or a 'Fever-shed' meant a place for Typhus and nothing else". J.B. Russell, The Evolution of the Function of Public Health Administration (Glasgow, 1895), p.63.

infectious disease beds; notably in London where the Metropolitan Asylums Board was established to provide asylums and infectious disease hospitals that were entirely independent of the workhouses ⁽¹⁾. In Glasgow it was the municipal authorities who provided the fever hospitals. Like other large Scottish cities the city authorities preferred to work through local Police Acts rather than rely on central authorities ⁽²⁾ and so they were closely involved in the problem of dealing with infectious diseases.

In the first half of the nineteenth century fever cases and cases of smallpox were treated in the Royal Infirmary and, after the enactment of the Poor Law (Scotland) Act, paupers were treated in the wards of the city's poorhouse hospitals. It was only with the passing of the Glasgow Police Act of 1862 that the city magistrates were empowered to set up temporary fever hospitals and later legislation made it possible to maintain these hospitals permanently.

Until the various Nuisance Removal Acts were passed between 1846 and 1856 there was no statutory means by which the city authorities could deal with epidemics of fever and smallpox. In times of epidemic in Glasgow the only recourse was to subventions from the common good and public subscriptions ⁽³⁾. The earliest statutory powers for dealing with infectious or contagious diseases were enacted to deal with asiatic

1. Ayres, op.cit. pp.17-28 & 34-5. The M.A.B. was established by the Metropolitan Poor Act of 1867 and the epidemic of relapsing fever that broke out in London in 1869 provided the impetus that led to the building of the first M.A.B. infectious disease hospital.
2. Best, op.cit. p.394. Edinburgh Corporation also provided municipal fever hospitals; it opened the City Fever Hospital in the old Canongate Poorhouse in December 1870 and in 1885 bought the old Royal Infirmary building and equipped it as a fever hospital, see H.P. Tait, A Doctor and Two Policemen, The History of the Edinburgh Health Department 1862-1974 (Edinburgh, 1974), pp.31-3.
3. Russell (1905) op.cit. p.16.

cholera, a disease which aroused terror among the middle and upper classes no less than the poor ⁽¹⁾. A disease of the poor alone like typhus caused far less concern. The Cholera Acts of 1832 empowered the Privy Council to issue rules and regulations concerning the precautions to be taken when cholera threatened ⁽²⁾. The Nuisance Removal Acts, although they contained no permanent, effective means of dealing with infectious disease, did afford some powers to deal with epidemics. These only came into operation after an Order in Council to the effect had been issued by the Privy Council which authorized the measures to be taken in certain specified areas during the emergency. These measures included house-to-house visiting, the reduction of overcrowding etc. and the provision of medical attention, medicines, and hospital accommodation ⁽³⁾. The Nuisance Removal (Scotland) Act of 1856 ⁽⁴⁾ extended the powers given by earlier Acts. But measures to control epidemics still had to be initiated by the Privy Council issuing Orders in Council at the time of the outbreak, orders which gave powers for "the dispensing of medicines, and for affording to persons afflicted by or threatened with epidemic, endemic or contagious diseases, such medical aid and accommodation as may be required" ⁽⁵⁾. These powers were temporary and required to be renewed every three months. The Act also enabled local authorities to appoint a committee to administer the new powers ⁽⁶⁾.

1. M.W. Flinn, introduction to The Sanitary Condition of the Labouring Population in Great Britain, E. Chadwick (Edinburgh, 1965), p.10; and see A. Briggs, "Cholera and society in the nineteenth-century" Past and Present, 19 (1961).
2. 2 & 3 Will. IV cc.10 & 11.
3. Russell (1905), op.cit. p.83.
4. 19 & 20 Vict. c.103.
5. G.C.A. DTC 14 2 5, cited in the Account of the Proceedings at the Inspection of the New Hospital for the Treatment of Infectious Diseases (Glasgow, 1877), p.4.
6. Brotherston, op.cit. p.95, as, for instance, the Committee of Nuisances was appointed in Glasgow in 1857 with John Ure as chairman.

The Glasgow Police Act of 1862, which was based on Ure's recommendations (1), extended the local powers of the Glasgow authorities; a Sanitary Committee chaired by Ure was appointed and so, in 1863, was the city's first medical officer of health. In addition the new Glasgow Police Act empowered the magistrates to issue directions and regulations during an epidemic or threat of epidemic for those districts, "in which the medical officer has reported that an epidemic, or contagious Disease prevails or exists or threatens to prevail" (2), to reduce overcrowding, remove nuisances etc. and provide "For the dispensing of Medicines, and for the affording to Persons afflicted by or threatened with Disease such Medical Aid and such Accommodation as may be required" (3). Such regulations had to be published in a local newspaper and a copy sent to the Privy Council "who may, if they think proper, disallow, revoke or modify the same" (4).

In 1864 when a fever epidemic swept through Glasgow the city magistrates made use of the 1862 Police Act, including powers contained in s 261, to deal with the crisis. At first Dr. Gairdner, the medical officer, relied on the general powers of the Act and the local Parochial Boards to extend, "beyond the sphere of pauperism, strictly so called, the relief afforded in cases of epidemic disease," but as the epidemic spread it became apparent that more positive action was required now that, "many persons, quite above the rank of paupers, and to whom the Parochial Boards positively declined to give relief, were suffering very serious hardships and privations, under circumstances dangerous to the public at large" (5).

1. G.C.A. D.T.C. 14 2 2. Statement of Mr. Ure, op.cit. p.4.
2. 25 & 26 Vict. c. 204 S 260.
2. ibid s 261.
4. ibid s 260.
5. G.C.A. DTC 14 2 2, Special Report by Dr. Gairdner to the Magistrates' Committee as to the proposed Temporary Fever Hospital in Nassau Court, Anderston (Feb. 2 1865), pp.3-4.

In an attempt to define the sphere of their possible activity legal advice was sought on the precise meaning of Sections 255-265 of the Police Act and it was held that these sections applied only to emergency situations and only for a limited period. Hence the city magistrates did not have the power to provide a permanent fever hospital.

The Fever House at the Royal Infirmary soon began to fill with fever and smallpox cases ⁽¹⁾ and the managers restricted admission to "the limited class of applicants who had the means of procuring orders from private subscribers" ⁽²⁾. The Infirmary managers consulted with members of the Police Board and representatives of the City Parochial Board in order to determine how extra accommodation could be provided to deal with the epidemic. The managers concluded that under the new powers of the Glasgow Police Act it was now the responsibility of the Police Board to make provision for the treatment of cases of infectious epidemic disease ⁽³⁾. Accepting that they were not providing facilities for the treatment of infectious disease as they were charged to by the recent Police Act, the magistrates, though unable to maintain a permanent hospital, determined to set up a temporary one for a period of six months. This decision was duly submitted for the approval of the Privy Council ⁽⁴⁾.

The Master of Works drew up plans for a temporary wooden building ⁽⁵⁾ on a piece of vacant ground by Parliamentary Road but as this would take time to complete an existing building was sought that could be used as a temporary fever hospital. A disused cotton mill was leased in Anderston

1. See above, p.104.
2. North British Daily Mail, Dec. 27 1864.
3. 17th Ann. Rep. Royal (1864).
4. And was presumably approved. G.C.A. DTC 14 2 2, Gairdner, op.cit. p.5.
5. North British Daily Mail Dec. 27 1864, the hospital was described as being "reared on a foundation of town rubbish" N.B.D.M., 28 Nov. 1864.

but it was never opened as local people objected to the presence of a fever hospital because of the risk of infection ⁽¹⁾. Within three months, however, a wood and brick pavilion hospital had been put up at Parliamentary Road ⁽²⁾ which was opened on the 23 April 1865 with Dr. J.B. Russell, a former student of Dr. Gairdner, as its first medical officer ⁽³⁾.

It was not until the 1862 Police Act came to be revised in 1866 that the Board of Police was given the power to "maintain the present hospital erected by them in Parliamentary Road" and to enlarge it and provide other hospitals ⁽⁴⁾; until this Act was passed the Parliamentary Road hospital was kept open by six monthly orders from the Privy Council. The 1867 Public Health (Scotland) Act ⁽⁵⁾ empowered all local authorities to make similar provision for treating infectious diseases. Thereafter the provision of permanent municipal fever hospitals was possible.

The new hospital at Parliamentary Road provided 136 beds in eight sixteen-bedded wards and some smaller four-bedded wards, in four pavilions. The wards had the usual sanitary facilities, were heated by hot water pipes and were well ventilated (the prevailing miasma^{tic} theory of disease

1. North British Daily Mail, 24 Jan. 1865.

2. In spite of the suggestion made by the North British Daily Mail (28 Nov. 1864) that Glasgow galvanisers could provide a metal frame and corrugated iron building within a period of 48 hours.

3. Russell was educated at the High School of Glasgow and graduated B.A. at Glasgow University in 1858 and only then began to study medicine. Meantime he assisted Prof. William Thomson (later Lord Kelvin) in the laying of the first Atlantic cable between Europe and America. He graduated M.D. C.M. in 1862 having studied with Lister and Gairdner. He spent two years as a House Physician at the Royal Infirmary and as assistant medical officer at the City poorhouse. He had applied unsuccessfully in 1864 for the position of medical officer at Barnhill poorhouse and among those who provided glowing testimonials were Profs. Lister, Gairdner, and Thomson (see Biographical Note in Russell (1905) and Testimonials in favour of Dr. J.B. Russell (1864) in the library of the Royal College of Physicians of Glasgow).

4. 29 & 30 Vict. c. 273 s 266. The Glasgow Medical Examiner I (1869), 49 complained bitterly about the cost of the hospital.

5. 30 & 31 Vict. c.101.

put ventilation at a premium). In addition there was a lodge, dead house, store, a disinfecting station for patients' clothing, and accommodation for the staff.

In the second year of the existence of the City of Glasgow Fever Hospital the country was threatened by cholera. In August 1865 the Secretary of the Privy Council had circularized the heads of municipalities warning of the recent appearance of cholera in Egypt, Turkey and Italy authorizing them to take all necessary measures. The Parliamentary Road hospital was therefore cleared of fever cases and between 11 August and the 3rd of December all fever cases were admitted to the Royal Infirmary or to poorhouse sick wards. The hospital at Parliamentary Road was kept for cholera cases under the charge of Dr. Russell who also supervised the setting up of temporary cholera hospitals ⁽¹⁾. Six sites were selected for district cholera hospitals but in the event only the hospital at Greendyke was completed; one other at Cranstonhill was started but never finished as the outbreak was kept well under control ⁽²⁾. Great difficulty was experienced in getting suitable nurses for the cholera hospitals. Dr. Gairdner appealed to the churches for volunteers: a letter was circulated to all clergymen asking that suitable women in their congregations "not much hampered with family ties, and answering to the description of the ancient deaconesses, 'grave, not slanders, sober, faithful in all things'" ⁽³⁾ should volunteer as nurses. But evidently there were no such women in Glasgow as there was no response to this appeal ⁽⁴⁾. Russell was able to arrange for an emergency staff of cholera

1. W.T. Gairdner, "On certain arrangements made in the City of Glasgow, 1866, with a view to the prevention of epidemic cholera". Transactions of the Association of American Physicians, VI (1891) 6.
2. Report of the City of Glasgow Fever Hospital, May 1 1866-30 April 1867.
3. Glasgow Weekly Herald, Aug. 25 1866.
4. Russell commented, "Probably the actual presence of cholera might have quickened Christian charity". Rep. Glasg. Fev. Hosp. op.cit.

nurses who were paid 2/6d. weekly retainer. Only ten of the several hundred who applied were suitable and their names were placed on the emergency list.

In a crisis like this the lack of trained nurses in Glasgow was obviously a great disadvantage. In Liverpool the organization of cholera nurses, as Russell noted, was left to the Lady Superintendent of the Nurses' Training School and Home who delegated her nurses to supervise untrained women ⁽¹⁾; but no such organization existed in Glasgow at this time.

The 1865 outbreak of cholera was kept well under control in Glasgow. The first cases occurred in the notorious New Vennel and in all eleven cases were treated in the Parliamentary Road hospital ⁽²⁾ and thirteen in the temporary Greendyke hospital ⁽³⁾. The disease did not become epidemic. Dr. Gairdner believed, "that Loch Katrine water would prove, at least in a comparative sense, the salvation of Glasgow from the worst ravages of Asiatic cholera" ⁽⁴⁾; and he was probably correct.

From July 1867 when the Police Act of the previous year came into force in Glasgow the hospital in Parliamentary Road had to be maintained (but not necessarily kept open) permanently. In October of that year a special committee ⁽⁵⁾ considered Russell's report on the Fever Hospital for 1866-7 and a letter from Dr. Gairdner and concluded

1. Rep. Glasg. Fev. Hosp., op. cit. and see Glasgow Weekly Herald, Aug. 25 1866.
2. Of whom 9 died; only 6 of the 13 cases in Greendyke hospital were actually cases of cholera.
3. These hospitals adopted very stringent disinfection procedures by contemporary standards; patients' clothing was disinfected in a saturated solution of chloride of zinc and excreta were sterilized with powdered sulphate of iron and later buried outside the city. In the hospital special carbolic soap was used and in each ward a gas-evaporating stand threw off a constant stream of acid and water. Similar measures were taken at the Greendyke hospital by the visiting physician and his two medical assistants. Rep. Cit. Fev. Hosp. 1866-7, op.cit.
4. Gairdner, op.cit. p.4.
5. Drawn from the Magistrates' Committee and the Sanitary Committee.

that although there was no specific epidemic in the city the hospital in Parliamentary Road should be kept open (not merely equipped and ready for an emergency) for the treatment of fever patients for at least another year. There were several reasons for this. First winter was approaching with the prospect of the usual seasonal rise in fever cases; second the cost of the hospital was not outrageous (the expenses in the cholera epidemic of the previous year had been exceptional); third, the Board would save in the coming year by treating all cases of fever in the City Fever Hospital in Parliamentary Road rather than paying for their treatment in the Royal Infirmary; fourth, the effectiveness of the City hospital in dealing with epidemics would be reduced if the hospital was opened and then closed again ⁽¹⁾. For these reasons the fever hospital was kept open. By December Dr. Russell reported that 70 patients had been admitted ⁽²⁾ and the number continued to increase. Evidently the committee's decision had been vindicated. By early 1868 the hospital was so busy that a resident medical assistant was appointed early in February for a period of seven weeks and in July a full-time medical officer was appointed and Dr. Russell became the non-resident medical superintendent ⁽³⁾. It was now obviously essential that a fever hospital was maintained and operated in the City.

That a fever hospital, in addition to the fever wards of the Royal Infirmary, was needed in Glasgow was demonstrated again and again in the next few years. In the winter of 1868-9 the fever beds in the Royal Infirmary were full by December and it was agreed that fever cases

1. G.C.A. E1 17 1, Fever Hospital Minute Book, p.1.
2. 26 of them were chargeable to City parish.
3. G.C.A. DTC 14 2 3, Reps. Cit. Fev. Hosp. 1866-7 & 1868-9.

sent there should be admitted to the City Fever Hospital in Parliamentary Road ⁽¹⁾. By April 1869, however, there had been a great increase in fever cases and the City Fever Hospital had to ask the Royal Infirmary to stop sending patients as there were only four empty beds left in the hospital. By August there were already 123 patients in the Fever Hospital and it was still only summer, "after which the number of cases of fever, in the experience of the Hospital, has always begun to rise for the Winter" ⁽²⁾. Further hospital accommodation was urgently required, particularly as two of the small wards at Parliamentary Road were being used by staff thus reducing the total number of hospital beds to 128. Soon parish cases would have to be turned away. Fortunately the Infirmary was by then able to provide some fever beds ⁽³⁾. But the relief was only temporary. The number of fever cases continued to increase and in October Dr. Gairdner wrote to the Lord Provost urging that action be taken. It was agreed that the wooden cholera hospital building adjoining the Western Police Office should be prepared for use as a fever hospital and that a site for an additional hospital should be found ⁽⁴⁾. Subsequently it was suggested that the wooden building should be dismantled and re-erected in Parliamentary Road ⁽⁵⁾ but the directors of the Royal Infirmary offered the Board of Police the use of their recently completed wash-house and, with a few alterations, this was adapted by the Board to house 40 fever patients ⁽⁶⁾. Meanwhile a piece of land adjoining the Parliamentary Road Hospital was feued as the site for two hospital pavilions ⁽⁷⁾. Estimates for one pavilion

1. G.C.A. El 17 1, p.46. The Royal Infirmary had to pay £2 for each patient admitted to the City Fever Hospital from beyond the municipal boundary.
2. *ibid.* p.60.
3. *ibid.* p.64.
4. *ibid.* p.72.
5. *ibid.* p.77.
6. *ibid.* p.86 & 76th Ann. Rep. Royal (1870).
7. G.C.A. El 17 1, p.91.

were in hand by the end of January 1870 and it was ready by the end of March ⁽¹⁾. Again the authorities had improvised at a time of crisis.

As Russell remarked, "Looking back over the history of successive epidemics which have passed over the community wave-like, with intervals of remission, we find that each wave has been met by expedients extemporized in the midst of its outset"

And although the money for this had been raised in different ways, "Whether in the form of Parochial or Police assessment, or of voluntary contributions to the funds of the Royal Infirmary", it all came from the general public ⁽²⁾. Hospital provision was always made temporarily at the last moment, just as an epidemic struck. "The time for deliberation about a fever hospital", Russell suggested, "is during the interval when there is no fever in the City" ⁽³⁾.

Besides the problem of fever there was also smallpox. In May 1870 no sooner had the number of fever cases begun to fall than smallpox broke out. By the end of the year there were 38 cases being treated in the Royal Infirmary and there were instances of cross-infection ⁽⁴⁾. In order to prevent further cross-infection from highly infectious smallpox cases two wards at the City Fever Hospital at Parliamentary Road were cleared of cases of fever and used for smallpox, leaving the Infirmary free to admit more fever patients ⁽⁵⁾.

The impetus which led to further expansion of the municipal infectious disease hospitals in Glasgow in the early 1870's, however, was not

1. G.C.A. E1 20 1, p.3.
2. G.C.A. DTC 14 2 3, Rep. Cit. Fev. Hosp. 1868-9, op.cit.
3. G.C.A. DTC 14 2 3, Rep. Cit. Fev. Hosp. 1868-9, op.cit.
4. G.C.A. E1 20 1, p.159.
5. *ibid.* p.170 & 77th Ann. Rep. Royal (1871).

the outbreak of smallpox but an epidemic of relapsing fever. Relapsing fever is one of the most epidemic of epidemic diseases. Until well into the twentieth century devastating outbreaks occurred in Europe, Asia and Africa. It had broken out with typhus in Ireland in 1849-50 and Irish immigrants introduced the disease into the U.S. (1). There were epidemics of relapsing fever in Scotland in 1816-17, 1827-8, 1842-4, and again in 1847-9 (2). On this occasion the disease was first reported at the London Fever Hospital in Whitechapel in July 1868 having been brought into the country by Polish immigrants. In London the outbreak was one of the first problems that confronted the new Metropolitan Asylums Board (3). By January 1870 the disease had been reported in Manchester and in February in Edinburgh. From there it spread to Glasgow, introduced, it is said, by a tramp who infected the family with whom he lodged (4). Families who took in lodgers (and at this time even families living in the most overcrowded one room apartments often did so) produced many of the cases of relapsing fever (5), presumably because of the high degree of overcrowding. The made down houses and lodgings of the Central District proved to be hot bed of the disease (6). As Mackie showed in 1907 the louse is the vector of relapsing fever (7) and a louse borne disease is obviously associated with poverty, overcrowding, squalor, and infested clothing (8).

1. Topley and Wilson, op.cit., p.2297.

2. C. Creighton, History of Epidemics in Britain (Cambridge, 1894) II, pp.167, 181-2 & 191. Steele (1848), op.cit. 165 refers to the prevalence of "bilious relapsing" fever in 1847.

3. Ayres, op.cit.

4. Russell (1905), op.cit. p.339.

5. Rep. Cit. Fev. Hosp. (1969-70), op.cit.

6. G.C.A. DTC 14 2 38 Annual Report of the Health of the City for 1870, p.9.

7. Topley and Wilson, op.cit. p.2298. Obermeir in Berlin published his observations that showed that the spirochaete *Borrelia recurrentis* was the causative organism of relapsing fever in 1873.

8. Many of the cases of relapsing fever admitted to the City Fever Hospital were found to possess little wearable clothing. The Royal Infirmary Dorcas Society had to provide clothes and so a Dorcas Society was set up at the City Fever Hospital to carry out such tasks as collecting and distributing clothing. Glasgow Weekly Herald 9 Dec. 1871.

The epidemic continued to spread in Glasgow and the fever wards at the Royal Infirmary and at the City Fever Hospital began to fill. In September the Health Committee agreed that a site should be found for a second permanent hospital ⁽¹⁾. Three of the city's medical officers, (Drs. Gairdner, Russell and Dunlop) together with two representatives of the Faculty of Physicians and Surgeons (Drs. J. McLaren and Moses Thomas - the medical superintendent of the Royal Infirmary) inspected several sites, at Oatlands and Garscube, but neither proved suitable ⁽²⁾. Meanwhile Dr. Russell reported that the City parish authorities were asking that their fever cases should be admitted into Parliamentary Road hospital as the fever wards at the Infirmary were full ⁽³⁾. But within two weeks, at the end of September, the City Fever Hospital in Parliamentary Road itself was full too and Russell had to turn away both City and Gorbals parish cases ⁽⁴⁾. Plans were therefore made for an additional, temporary, moveable pavilion to be erected at Parliamentary Road. By now the City parish authorities were thoroughly alarmed at the lack of hospital accommodation for fever patients. The Inspector of the Poor of City parish had heard that neither the Parliamentary Road hospital, the Royal Infirmary, nor the fever wards of Barony poorhouse ⁽⁵⁾ could admit any more patients ⁽⁶⁾. He informed the Board of Police that he had decided to call a meeting of his Parochial Board before sending a delegation to the Board of Supervision in Edinburgh for their advice on the matter. At the end of September a meeting of the City Parochial Board

1. G.C.A. E1 20 1, p.99.
2. G.C.A. DTC 14 2 6. J.B. Russell, Memorandum on the Hospital Accommodation for Infectious Diseases in Glasgow (Glasgow, 1882), p.14.
3. G.C.A. D HEW 1 3 3, p.260, and see above, p.180 . City parish eventually had to set up a temporary fever ward in the City poorhouse.
4. G.C.A. E1 20 1, p.106.
5. G.C.A. D HEW 2 7 9, 15 Sept. 1870. Barony fever hospital had treated some of City's fever patients, see above, p.179, on Barony fever wards.
6. G.C.A. E1 20 1, p.131. At this time some 600 hospital beds were being used for fever patients. 252 at the City Fever Hospital in Parliamentary Road, 176 at the G.R.I. and others in the poorhouses of Barony and Govan.

and the Health Committee "after a friendly consideration of the duties and responsibilities of the different parties interested", agreed that the Board of Police as the local authority should provide at least 50 more beds at Parliamentary Road and a hundred beds if these were required. The Parochial Board was to pay the usual fee for the treatment of pauper cases (1).

Meantime the number of cases of fever continued to increase; Dr. Gairdner reported that 398 new cases were notified in the fortnight ending on the 17th October compared with 267 in the preceeding two weeks. The mortality from relapsing fever was relatively low (2) but as Gairdner noted, "it is to be regarded as a very grave evil cutting off the persons attacked usually for many weeks from all opportunity of working for livelihood and thus very often plunging families who were not necessarily paupers, into temporary destitution" (3).

Gairdner again urged the need for more hospital accommodation and maintained the stricken and often starving families by providing them with medical attention and sometimes food "and other bodily comforts" in their own homes. The food was distributed each day by the epidemic inspectors and female visitors of the Sanitary Department. Gairdner hoped that these arrangements would, "secure these cases from all risk of positive neglect; but (that) it would be very desirable that arrangements for additional hospital accommodation should be proceeded with as speedily as possible" (4).

1. G.C.A. D HEW 1 3 3, p.262.
2. Topley and Wilson, op.cit. p.2297 state that under good conditions the case fatality rate is as low as 5% but in time of war or other distress it reaches 60-70%.
3. G.C.A. E1 20 1, p.123, and see G.P. Tennant, "Remarks on Relapsing Fever", Glasgow Medical Journal, III (1871), 354.
4. *ibid.*

The fact that two authorities were responsible for the treatment of infectious diseases, the local authority and the Parochial Boards, served to complicate matters, however. The Poor Law authorities were responsible only for the destitute but in such a widespread epidemic many families who were far from poverty stricken when in health were reduced to pauperism by the disease and some families found it difficult to obtain relief ⁽¹⁾. Dr. Gairdner believed that such epidemic diseases "require a far larger and more liberal policy than was adopted on the present occasion" and that had relapsing fever been a fatal disease, like cholera, the evils of divided authority would have been more apparent. He suggested that in dealing with epidemic disease the Board of Police of the city, "should be not at all anxious to draw the

line between the pauper and the non-pauper, but should aim at finding out, and being primarily responsible for, the whole management of epidemic diseases, in so far as not clearly and obviously falling within the scope of the Parochial Board or of the public charities ⁽²⁾.

By November it was clear that still more hospital beds were urgently required but a site for a new fever hospital had still not been found. The Boys' House of Refuge, which was for sale, had been considered but was found to be unsuitable ⁽³⁾. On the 10th of November Drs. Russell, Gairdner, and Dunlop and Dr. Fleming (the President of the Faculty of Physicians and Surgeons), inspected the estate of Belvidere on the north bank of the Clyde and recommended that the southern part of the property was suitable as the site of a permanent fever hospital but that its

1. G.C.A. DTC 14 2 38, p.10.

2. *ibid.* p.11. Not until 1881 did the local authority assume responsibility for hospital treatment of all infectious diseases.

3. Glasgow Weekly Herald, Oct. 15 1870.

distance from the city "would render it necessary that the present hospital in Parliamentary Road, or some other adapted in situation for the reception of patients from the northern and north-west districts, shall continue to be available in future" (1).

On the following day (November 11) after an extraordinary meeting of the Board of Police the 32 acre Belvidere estate was bought (2). On the 18th November the Clerk explained to a meeting of representatives of the parochial authorities that the Board of Police, as the local authority under the Public Health (Scotland) Act, 1867, had resolved to provide sufficient hospital accommodation for all cases of fever and other infectious disease occurring within the city on the land recently purchased by the Board at Belvidere. The parishes would be charged for the treatment of paupers and "those considered proper objects of relief" (3). There was no time for elaborate plans for the new fever hospital and it was soon agreed that two pavilions with 50 beds in each should be built at Belvidere (4). The contractors moved into the fields of the estate on November 22nd 1870 and on December 19th the first pavilion was completed and occupied by convalescent patients who had been transferred from Parliamentary Road (5). The construction of two more pavilions had been authorized in November and an additional two on December 9th (6) making a total of six pavilions with 300 beds. By February 1871 295 patients were being treated at Belvidere.

1. G.C.A. DTC 14 2 6 Memo on Hosp.Accom. op.cit. p.15. Belvidere House had been built by the Virginia merchant Sam McCall, it passed to R. McNair a sugar refiner and was then sold to a coal owner, then to an iron master and finally to J.S. Miller of the nearby Springfield dye works. The Old Country Houses of the Glasgow Gentry, op.cit. p.xi.
2. Russell (1905) op.cit. p.339. At a price of £17,000 for the land and mansion house, North British Daily Mail 12 Nov. 1870. A leading article in the North British Daily Mail applauded this decision (14 Nov. 1870) pointing out that it was a small price to pay, "£10,000 per annum would not cover the pecuniary loss to the community in the shape of prostrated labour and pauperism resulting from preventible typhus and other contagious diseases".
3. G.C.A. El 20 1, p.149.
4. *ibid.*, p.139.
5. G.C.A. DTC 14 2 5, Account of the proceed.... op.cit. p.5.
6. G.C.A. El 20 1, pp.150 & 152.

Dr. Gairdner had argued in the autumn of 1870 that relapsing fever had spread in the Central District of city because of the "destitute and vagrant habits of a large proportion of the population" and the lack of hospital accommodation, "which by giving the means of isolation of infection might have largely contributed to repair the spread of the fever" (1). Cases that remained at home remained constant foci of disease. In mid-December 772 new cases of fever were reported, the highest number reported in any fortnight in this epidemic, and additional women were engaged by the Chief Sanitary Inspector to attend cases in their own homes (2). However with the provision of sufficient hospital accommodation immediate isolation of all cases of relapsing fever was possible and at about this time the epidemic began to tail off (3). December saw the peak in relapsing fever deaths (4) and therefore the monthly toll of deaths fell. It is questionable, however, whether the decline in relapsing fever was a direct result of increased hospital provision.

Of the 244 deaths in Glasgow that occurred from relapsing fever between May 1870 and April 1871 only 63 occurred in the City Fever Hospitals at Parliamentary Road and Belvidere and of these deaths 32 occurred at Belvidere between the 19th December 1870 and 30th April 1871. Obviously, even after the opening of Belvidere many cases of, and deaths from, relapsing fever were taking place outside the municipal infectious disease hospitals. Dr. Russell states that in the whole relapsing fever outbreak of 1870-2 there was a total of 396 deaths of which only 122 took

1. G.C.A. E1.20 1, p.141.

2. *ibid.* p.152.

3. G.C.A. DTC 14 2 4, Rep. Cit. Glasg. Fev. Hosp. 1870-1.

4. 52 relapsing fever deaths.

place in hospital ⁽¹⁾. It seems probable, therefore, that as so many cases of the disease were not being treated in hospital the decline in the epidemic was not primarily due to the existence of the municipal infectious disease hospitals though they, and the Sanitary Department's female visitors no doubt helped to ameliorate some of the worst features of the epidemic. Once the hospitals had been established, however, they could be used to treat cases of the more common infectious diseases that plagued the city.

Once the outbreak of relapsing fever was waning in the summer of 1871 the future of the municipal infectious disease hospitals had to be considered. In July the Board of Police asked the committee of health to consider whether the Parliamentary Road hospital could be closed and all infectious disease cases treated at Belvidere. The health committee delayed consideration of the matter until the hospital, which had been used latterly for smallpox cases, was empty and in 1872 asked Drs. Russell and Gairdner, and Carrick the Master of Works, to report on proposals to close the hospital at Parliamentary Road and build a new smallpox hospital at Belvidere ⁽²⁾. These gentlemen duly recommended that a new 120 bed smallpox hospital, entirely separate from the existing fever hospital, should be built at Belvidere but at the same time they argued very strongly against selling the Parliamentary Road hospital. The central site of the hospital, they reasoned, was of great value in times of epidemic, as had been found in the 1866 cholera outbreak when it had been necessary to provide District Cholera Hospitals near "the main masses of the people" ⁽³⁾. As Gairdner and Russell pointed out the size of epidemics and resulting

1. Russell (1905), op.cit. p.340.

2. G.C.A. DTC 14.2 6, Memo on hosp. accomm. op.cit. p.15.

3. *ibid.* p.16 and see El 20 1, pp.333-6.

expense were "just in proportion to the activity and thoroughness of the positive measures adopted at their outset and of these the most important is prompt isolation" (1). The Police Board, however, was reluctant to build a new smallpox hospital at Belvidere while at the same time maintaining the hospital at Parliamentary Road and suggested that perhaps smallpox could continue to be treated there. Gairdner and Russell (after consulting the superintendents of smallpox hospitals in London and the medical officers of the districts in which these hospitals were situated) concluded that all smallpox ought to be treated in a separate hospital at Belvidere rather than at Parliamentary Road which was in a built-up area where there was always the possibility of cross-infection (2). There the matter rested until May 1873 when the local Fifth Ward Committee complained that the treatment of smallpox cases at the Parliamentary Road hospital had caused infection in the district (3). In December of that year it was agreed that the construction of a smallpox hospital at Belvidere could no longer be delayed and plans for a new hospital incorporating many suggestions made by a deputation which visited smallpox hospitals in London and elsewhere, were prepared (4). The new hospital, which had five pavilions providing a total of 150 beds, was completed and opened in 1877. Thus despite their reluctance to incur further expense the city authorities had had to build a special smallpox hospital at Belvidere while at the same time retaining the hospital building in Parliamentary Road.

1. G.C.A. DTC 14 2 6, Memo on hosp. accomm. op.cit.
2. G.C.A. E1 20 1, p.343.
3. G.C.A. E1 20 2, p.27. It was about this time that residents near the M.A.B. smallpox hospital in Hampstead were campaigning to get the hospital removed because of the supposed danger to local residents, Ayres, op.cit. p.55.
4. *ibid.* p.94. It was to be financed by an assessment of 1/4d/£ under the terms of the Public Health (Scotland) Act, 1867 and the Public Health Act, 1871, on security of which funds for the hospital could be borrowed, *ibid.* p.118.

With the completion of the smallpox hospital at Belvidere the hospital in Parliamentary Road was closed and kept for emergencies. In 1881 the north block of wards was taken down leaving four pavilions containing 120 beds in ten wards, and the usual offices ⁽¹⁾. At Belvidere the temporary wooden fever blocks had been replaced by permanent, brick, single-storey buildings and by 1887 there were 13 pavilions, each with two wards housing a total of 390 patients. These buildings incorporated the latest ideas in hospital design and even had double glazing ⁽²⁾. The old mansion house on the Belvidere estate was used to house the medical and nursing staff.

The municipal hospitals had been originally set up to deal with smallpox and fever outbreaks. As these declined in frequency and severity, the hospitals were used increasingly to treat the less serious infectious diseases of childhood, particularly scarlet fever and, to a lesser extent, measles and whooping cough (Table XLVI). Once the policy of treating these diseases in hospital had been established it grew steadily.

In 1873 there had been an "unusually aggressive" ⁽³⁾ outbreak of scarlet fever in Glasgow and in the epidemic of the following year the medical officer of health of the city obtained authority to remove cases under warrant and thereafter "the hospital treatment of Scarlet Fever was quietly but firmly pressed" ⁽⁴⁾. At the first sign of infectious disease, moreover, many families were thrown out of their lodgings and the local authority was obliged to admit such infectious cases into hospital ⁽⁵⁾. But as Dr. Russell pointed out in 1882 it was largely

1. G.C.A. E1 25 1, p.70.

2. Christie (1889), op.cit. p.88 & J. Glaister, A Textbook of Public Health (Edinburgh, 1910), p.486.

3. Russell (1905), op.cit.

4. *ibid.*

5. G.C.A. DTC 14 2 6, Memo. on hosp.accom. op.cit. p.11.

Table XLVI (1)

Annual average number of cases treated and mortality at the City of Glasgow Fever Hospital

Year	Typhus Fever		Enteric Fever		Scarlet Fever		Measles		Whooping Cough		Diphtheria	
	No. cases treated	Mortality %	No. cases treated	Mortality %	No. cases treated	Mortality %	No. cases treated	Mortality %	No. cases treated	Mortality %	No. cases treated	Mortality %
B e l v i d e r e												
1870-4	338	11.6	176	9.5	220	15.2	21	-	-	-	-	-
1875-9	326	13.6	379	13.2	236	11.9	105	4.7	34	13.7	-	-
1880-4	229	12.5	499	13.7	882	11.9	384	8.0	132	17.3	-	-
1885-9	115	13.3	280	15.9	1073	8.9	528	9.1	224	19.4	8	46.6
1890-4	74	15.2	435	18.2	1642	6.2	701	9.3	283	19.6	22	47.7
1895-9	39	21.0	726	18.7	1257	5.5	956	9.2	359	18.0	138	36.2
1900-4	34	24.2	297	18.1	692	4.7	548	7.9	192	19.4	194	19.8
1905-9	17	21.1	204	19.3	786	4.0	712	10.2	495	17.6	186	17.1
P a r l i a m e n t a r y R o a d												
1874-6					430	13.2						
1890-4					1456	5.6						
1895-9					1460	4.4						
1900-2					749	3.6						
R u c h i l l												
1900-4	8	21.2	369	14.1	1098	3.6	422	7.5	174	13.4	184	15.0
1905-9	3	21.0	206	20.3	848	2.8	626	8.8	449	15.3	445	10.5

1. Source, reports of the City of Glasgow Fever Hospitals.

"By our own action in pushing hospital treatment against forms of infectious disease, for which hospital treatment was never thought of some years ago" that the demand for hospital care had risen ⁽¹⁾ and with it the need for hospital accommodation.

In 1874 the Parliamentary Road hospital, which was then being used for smallpox, was fumigated and cleaned so that it could be used for scarlet fever cases ⁽²⁾ and for the next few years it was there that most of the cases of the disease were treated. When the hospital was closed in the late 1870's scarlet fever patients were cared for at Belvidere but there was soon found to be a shortage of beds. In the epidemic of the autumn of 1880 Dr. Allan the medical superintendent at Belvidere reported to the Committee of Health that the fever wards were full and the new pavilions then under construction, were not ready. It was therefore decided that nine wards of the nearby, new smallpox hospital should be used for scarlet fever ⁽³⁾. The risk that was being taken in using smallpox wards for treating scarlet fever became clear when smallpox broke out in 1884. Some wards had hastily to be cleared to make room for smallpox victims ⁽⁴⁾ and, inevitably, at least one scarlet fever patient contracted smallpox. Plans were therefore made to re-open the Parliamentary Road hospital but on this occasion it was not required and additional fever accommodation became available when the thirteen permanent fever pavilions at Belvidere were completed in September 1886 ⁽⁵⁾. As a precaution the hospital at Parliamentary Road was repaired so that

1. G.C.A. DTC 14 2 6, Memo on hosp. accomm. op.cit.
2. G.C.A. E1 20 2, p.128, the new smallpox hospital at Belvidere was in course of construction and meantime Barony parish agreed to admit Board of Police smallpox cases to its smallpox wards at Barnhill.
3. G.C.A. DTC 14 2 6, Memo. on hosp. accom. op.cit. p.18.
4. G.C.A. E1 17 1, p.205.
5. *ibid*, p.321.

it was ready for use if required. In 1890 when scarlet fever again began to spread ⁽¹⁾ the hospital was reopened ⁽²⁾ to take cases of whooping cough and measles, leaving Belvidere for scarlet fever ⁽³⁾. On this occasion the Parliamentary Road hospital, staffed by nurses and doctors from Belvidere, remained open until March 1891. Then the equipment was put into store and the building boarded up: "Our experience of

Parliamentary Road Hospital was such as might have been

expected from the old and frail condition of the place",

Dr. Allan remarked, he hoped the hospital would not be needed again ⁽⁴⁾.

By October, however, Belvidere was so crowded with scarlet fever and enteric fever patients that Parliamentary Road hospital was reopened to admit all cases of influenza, whooping cough, and measles. It closed again at the beginning of March 1892. But it had to be reopened in August 1892 to admit measles and whooping cough cases and from January 1893 all the cases of scarlet fever were sent there. In that year the hospital in Parliamentary Road was enlarged to take an additional 80 beds (making a total of 200 beds) and remodelled ⁽⁵⁾ and thereafter it was used almost exclusively for the treatment of scarlet fever.

With the increasing number of scarlet fever cases that were being treated in hospital (Table XLVI) and the adoption by Glasgow of the Infectious Disease (Notification) Act in 1890 ⁽⁶⁾ it became clear that

1. In 1890 when scarlet fever again began to spread the Physician Superintendent reported that of the 600 patients in Belvidere on Oct. 18 386 were cases of scarlet fever. This total exceeds the normal capacity of the hospital as many more children than adults could be admitted and most of the cases of scarlet fever were children.
2. It could accommodate 160 adults or 240 children.
3. G.C.A. E1 25 2, p.178.
4. *ibid.* p.205.
5. G.C.A. E1 34 6, Hep. Cit. Glasg. Fev. Hosp. 1902.
6. 52 & 53 Vict. c.72.

more infectious disease beds were required and in October 1892 it was decided that a new hospital should be built at Ruchill (1).

Ruchill hospital opened in 1901 and was built in what was described as a "free treatment" of the architectural style of the Elizabethan period (2). The new hospital had twelve 30-bedded and four 12-bedded pavilions which accommodated 408 patients in all (and there was room for a further 48) (3). It incorporated some details suggested by a deputation of councillors which had visited infectious disease hospitals in England (4) and the ward blocks were equipped with the most modern sanitary facilities, heating and ventilation systems (5). In addition there were the usual wash-houses and disinfecting plant etc.

No sooner had the hospital opened than the city was swept by an outbreak of smallpox and five temporary wards were hastily erected at Belvidere (6); it was only after this that the Parliamentary Road hospital was finally closed (7).

Table XLVII (8)

Municipal infectious disease hospitals and population in Glasgow

Year	Number of beds				Total	Ratio of total beds/1000 population
	Ruchill	Parliamentary Rd.	Belvidere	small-pox		
1876	-	250	250	-	500	1.0
1878	-	120	250	150	520	1.0
1887	-	120	390	150	660	1.2
1893	-	200	390	150	740	1.1
1901	440	-	390	220	1050	1.3
1909	542	-	390	220	1152	1.3

1. G.C.A. E1 25 2, p.360. In 1883 the Committee of Health accepted Russell's Memorandum on the Hospital Accommodation for Infectious Diseases in Glasgow and agreed that with the introduction of infectious disease notification a second, new fever hospital was required (E1 6A 9, p.2026).
2. D. Richmond, Notes on Municipal Work, from November 1896 to November, 1899 (Glasgow, 1899), p.138.
3. *ibid.* p.136-8.
4. G.C.A. E1 25 3, p.45.
5. J. Glaister (1910), *op.cit.* pp.498-500, gives a detailed description of Ruchill hospital which was considered to be a model isolation hospital at the time.
6. A.K. Chalmers (1930), *op.cit.* p.160.
7. *ibid.* It was later used as a reception house for smallpox contacts.
8. Sources, Russell (1895), *op.cit.* p.125 & Chalmers *op.cit.* pp.155-161.

Table XLVII shows that the ratio of infectious hospital beds to population in Glasgow improved slightly after 1880 ⁽¹⁾. Nevertheless, even the new Ruchill hospital could not meet the increasing demand for hospital treatment for measles, scarlet fever, and diphtheria and in 1909 three additional pavilions with a total of 102 beds were built at Ruchill ⁽²⁾.

One of the first problems that had confronted Dr. Russell when he became medical officer of the first city fever hospital in Parliamentary Road in 1865 was that of getting suitable nurses. (It was always possible to recruit some women to act as nurses but difficult to get suitable, reliable, educated women.) As Russell noted the successful management of a hospital "depends almost entirely on the careful pre-arrangement of two departments - The Kitchen and the Nursing" ⁽³⁾. These two items were the most expensive in the hospital budget and, "Medically, no advantage of situation, of professional skill, or sanitary arrangements will make up for defective nursing;". It was particularly difficult to get suitable women (who ideally should have had fever) to be fever nurses. Russell's difficulty in finding nursing staff in the cholera outbreak of 1866 has already been mentioned ⁽⁴⁾. "As things are", he complained, "nurses have no organization as a class and no morale", and the popular idea of the hospital nurse "resembles that of a washerwoman - drinking is inseparable to both" was only too true ⁽⁵⁾. At present, Russell continued, "nursing is the last resort of female adversity.

Slatternly widows, runaway wives, servants out of place, women bankrupt of fame and fortune, fall back on hospital nursing".

1. Between 1865 and 1876, of course, infectious diseases were also treated in the G.R.I. and the sick wards of the poorhouses.
2. Chalmers, op.cit. p.161.
3. G.C.A. DTC 14 2 2, 1st Rep. Cit. Glas. Fev. Hosp. 1865-6.
4. See above, p. 232.
5. 1st Rep. Cit. Glas. op.cit.

What was required was "the dignity and morale" provided by "a special education, special organization, firm and kind moral supervision, with high pay during active service, a home when not actually engaged, and a superannuation fund to look forward to in old age" (1).

Eventually all this was achieved in the Glasgow fever hospitals but meanwhile Russell preferred to take on women of good character who had no previous nursing experience rather than engage women who had worked in poorhouse sick wards or other hospitals (2). Evidently this policy of employing women of good character rather than those with previous nursing experience was continued; in 1874 the Parliamentary Road hospital was advertising for nurses, "Experience not essential, but certificate of good moral character indispensable. Must be able to read and write" (3).

Mrs. Sinclair, who was appointed matron of Belvidere in 1875 (4) described the state of nursing in the City of Glasgow Fever Hospitals when she arrived, "I found everything in the most primitive condition, from the kitchen where the beef tea went to the wards as greasy water and the two nurses of each ward were elderly women who changed duty each week They had £24 p.a. and any amount of tips in money and whisky". (5)

With the help of Dr. Allan (6) she transformed the system of nursing and introduced a probationer nurse training scheme. As Dr. Brownlee the medical superintendent wrote on her retiral in 1906, "the number

1. 1st Rep. Cit. Glasg., op.cit.
2. *ibid.* p.17. "We put Miss Nightingale's little work into their hands as a text book" (presumably Miss Nightingale's Notes on Nursing).
3. North British Daily Mail, 10 April 1874.
4. She had been matron of the fever wards at Barnhill poorhouse.
5. Quoted by E.S. Haldane, op.cit. p.80.
6. Who had succeeded Russell as medical superintendent of the fever hospitals in 1873.

of nurses was increased, their training better arranged, the class successively selected from those of better moral and educational standing, till the old order was swept away and the work of the hospital conducted in a manner and with an effectiveness commensurate to its duties" (1).

The City Fever Hospitals were organized and administered in much the same manner as the infirmaries with the difference that the fever hospitals were under the overall supervision of the Hospital Committee of the Board of Police rather than that of the infirmary managers or directors. Within the hospital the medical superintendent was in charge; in June 1868 the Hospital Committee had agreed that it would be best to leave the general management of the hospital as well as the treatment of the patients to Dr. Russell. Russell was accordingly made Physician Superintendent of the hospital with the power to appoint the nurses and other staff, to supervise the resident medical officer (who did the dispensing and was responsible for the day to day care of the patients), and the general expenditure of the hospital (2). Eventually a house steward was appointed to assist the medical superintendent with his administrative duties (3). Thus the position of the medical superintendent of the City Fever Hospitals was more like that of the medical superintendent of the Royal Infirmary than that of a medical officer in a poorhouse who was answerable to the governor on non-medical matters and had no say in the administration of the house.

The original municipal fever hospital was hastily set up in Parliamentary Road to deal with the fever outbreak of 1865 and a second, larger hospital was built in the relapsing fever epidemic of 1870. Once

1. G.C.A. C 2 1 7 Rep. Cit. Fev. Hosp. Belv. 1906.
2. G.C.A. E1 17 1, p.22. Russell remained medical superintendent of both fever hospitals (Parliamentary Road and Belvidere) until he was appointed M.O.H. of the city in 1873 (G.C.A. E1 20 1, p.346). Thereafter he acted as consulting physician to the hospitals which he visited once a fortnight and he supervised hospital staffing.
3. G.C.A. E1 25 1, p.229.

these hospitals were established with a permanent medical staff attention could be paid to such problems as that of recruiting and training suitable women as nurses who were competent to care for the sick; this was difficult, if not impossible, when fever hospitals were not maintained on a permanent basis. With the establishment of permanent hospitals such problems as that of isolating the highly infectious cases of smallpox could be tackled. Eventually separate hospitals were built for smallpox, the first one opened at Belvidere in 1877 and the second was built right outside the city at Robroyston and was opened after the first World War. Finally, once permanent fever hospitals had been established other cases of infectious disease could be treated in them when there was room. And so as fever became less common many more cases of the common infectious diseases of childhood, scarlet fever, whooping cough, and measles, began to be treated in hospital. Thus the demand for infectious disease hospital treatment in Glasgow continued to grow necessitating the building of another large hospital.

By the end of the period Glasgow had two large purpose built, permanent fever hospitals and a smallpox hospital ⁽¹⁾. These hospitals were staffed by trained nurses (or nurses in the course of their training) and doctors who specialized in the treatment of infectious diseases and who had the benefit of recent advances in bacteriology to help in diagnosis ⁽²⁾. The question that must be considered is whether the fall

1. At this time a new smallpox hospital was planned to be built outside the city at Robroyston but it was not opened until after the First World War, Chalmers, op.cit. p.362.
2. The hospitals had no trouble in getting junior medical staff since, "appointments are at great request among the best students of the Glasgow school" (G.C.A. DTC 14 2 6, Report of the Proceedings at the Official Inspection by the Lord Provost, Magistrates and Council of Belvidere Hospital, 1887, p.11). Dr. O.H. Mavor (the writer James Bridie) describes working with John Brownlee, the medical superintendent of Belvidere and a pioneer of British epidemiology. A resident medical post at Belvidere was considered a very desirable job in the early 1900's (J. Bridie, One Way of Living (1939), p.221). From 1884 regular courses of clinical teaching in infectious diseases had been given to medical students at Belvidere (see El 6A 10, p.2129), J.W. Allan, "Clinical Instruction in Infectious Diseases: Three Short Addresses," Glasgow, 1889).

in mortality in Glasgow in the diseases that were treated in these hospitals can be directly attributed to the treatment provided.

In the absence of data on the number of cases of the various infectious diseases that occurred in Glasgow each year before the infectious Disease (Notification) Act came into force ⁽¹⁾ there is no way in which the relative number of cases being treated in the City Fever hospitals from 1865 onwards can be measured. The proportion of the total deaths in Glasgow from these diseases that occurred in the fever hospitals does, however, give some indication of the growing proportion of cases of infectious diseases that received hospital treatment. The percentage of deaths occurring in hospital rose significantly for typhus, enteric fever, scarlet fever, and diphtheria; markedly for smallpox, measles, and whooping cough, though in the case of the latter two the rise remained relatively small (Table XLVIII).

Table XLVIII (2)

Proportion of deaths from certain common infectious diseases in Glasgow that occurred in the City of Glasgow Fever Hospitals.

Year	Smallpox	Typhus	Enteric Fever	Scarlet Fever	Measles	Whooping Cough	Diphtheria
1870-4	64%	16%	7%	4%	-%	-%	-%
1875-9	72	62	24	8	1	0.7	-
1880-4	81	73	33	27	8	3	2
1885-9	100	78	44	40	14	7	7
1890-4	91	84	62	68	10	8	28
1895-9	99	100	82	79	15	10	37
1900-4	99	81	58	50	14	10	44
1905-9	99	100	96	74	24	24	66

1. Even after this notifiable diseases were probably under-reported.
2. Sources, smallpox data, Russell (1905), op.cit. p.332: other data Detailed Annual Reports of the Registrar General and Annual Reports of the Glasgow Fever Hospitals. Data on fever hospitals are for the years ending 30 April from 1870-4, thereafter for years ending 31 May. From 1892 the cases treated at Parliamentary Road are included and from 1902 so are the cases treated at Ruchill hospital.

If the relative number of deaths in hospital from smallpox, typhus, enteric fever, and (to a lesser extent) from scarlet fever is an indication of the proportion of total cases of these diseases being treated there then clearly towards the end of the period most cases of these diseases in Glasgow were being treated in hospital. On the other hand the proportion of cases of whooping cough and measles treated ⁽¹⁾ was smaller and so hospital treatment can have contributed little to any decline in mortality from these causes ⁽²⁾. Moreover, hospitalization would probably not have reduced the overall incidence of scarlet fever, measles, whooping cough, and diphtheria for the causative organisms are ubiquitous in the community, only causing severe disease in a proportion of those infected and so hospital treatment of these cases is unlikely to have reduced the incidence of infection significantly. Enteric fever, which is spread by contaminated water, milk, and food, from cases and also from healthy carriers is difficult to diagnose in mild cases. Hospitalization is therefore unlikely to have reduced the overall incidence of infection as many of the cases would not have been detected. Smallpox, on the other hand, is spread by clinically obvious cases ⁽³⁾ and isolation of these would have an important effect in removing the sources of virus and was therefore quite important in reducing the overall number of cases. Similarly with typhus (though diagnosis is not so clear cut) hospital isolation of cases probably reduced the overall incidence in the community.

The effect of treatment given in the hospitals to cases of smallpox, enteric fever, typhus and diphtheria ⁽⁴⁾ is unlikely to have been significant. There may have been some beneficial results from hospital treatment of measles and whooping cough cases but probably not to any marked degree.

1. As measured by the proportion of deaths from these diseases that occurred in hospital.
2. See below, p.349ff for detailed discussion of the mortality decline of each of these diseases. Diphtheria was probably under-reported as a cause of death in Glasgow and so the relatively high proportion of deaths occurring in hospital is probably misleading.
3. But see below, p. 312
4. Until serum treatment was introduced, see below, p. 398-9.

8. Dispensaries

The medical care that was provided by the Glasgow hospitals was complemented by that provided in infirmary out-patient dispensaries and in other voluntary dispensaries in the city. Like the infirmaries the various non-hospital dispensaries were supported by subscriptions and donations and they too provided free medical advice and sometimes free medicines as well. In addition, unlike the hospital out-patient departments, some of the dispensaries provided domiciliary visiting.

Information on hospital out-patients is contained in the annual reports of the infirmaries and consists merely of lists of the number of patients attending the various out-patient departments during the year. The other dispensaries also issued annual reports but these are often not very informative as they are more concerned with fund raising or evangelism than with providing epidemiological information. No complete set of these annual reports have survived; some of the dispensaries were in existence for only a short time. The first eight reports of the Western Public Dispensary for 1854-61 are extant, most of the reports of Anderson's Collegè Dispensary and its successor the Glasgow Central Dispensary for the years 1879 to 1904 are available, and so are the annual reports of the Glasgow Medical Missionary Society for the years 1877 to 1895 ⁽¹⁾. Most of the reports give details of the total number of patients seen during the year and some of the reports of the Glasgow Medical Missionary Society also give information about the sort of conditions suffered by patients. The reports of the Anderson's College Dispensary, however, like the infirmary reports, merely give details of the number of medical, surgical, skin, E.N.T. etc. cases seen in the year.

1. Both the Glasgow Central Dispensary and Glasgow Medical Missionary Society were still in existence in the first decade of the twentieth century, see 5th Edition Handbook of Glasgow Charities (Glasgow 1907).

Some of the reports of the Medical Missionary Society and some of the Western Public Dispensary reports discuss the relationship between the diet of working-class patients and health; this is of importance as this matter is rarely discussed elsewhere (1).

Useful general sources of information on Glasgow charities are the Handbooks of Glasgow Charities which were published periodically by the association for Organizing Charitable Relief and Repressing Mendicity.

The infirmary out-patient departments and the dispensaries saw all the patients who presented themselves, not just those with a subscriber's "line". Patients would be seen by a doctor, advised, and perhaps medicine would be prescribed. A very large number of patients were seen in a short space of time and the examination of patients and taking of case histories must have been very cursory. As Dr. James Erskine complained in 1887, "Neither can the diagnosis of a case

be made, nor its treatment carried out with the necessary precision and care, so long as dispensary physicians and surgeons pass patients through their hands at the rate of one every two minutes" (2).

The dispensary staff also dressed wounds and even performed a certain amount of minor surgery.

The object of the dispensaries was to treat those who were too poor to pay to see a doctor but who were not in receipt of poor relief. Local doctors tended to regard both out-patient departments and dispensaries as competitors and some of the dispensaries went to great lengths to show just how poor their patients really were. As detailed considera-

1. See below, p.333ff for detailed analysis of this matter.
2. J. Erskine, letter to Glasgow Medical Journal, XXVII (1887), 280.

ation of individual dispensaries will show a considerable proportion of the patients treated suffered from medical, rather than surgical, conditions, and data from those dispensary reports which give such detailed information shows that many of the medical patients suffered from respiratory conditions which were then the major cause of death in Glasgow. The infirmary out-patients departments treated far more patients than the other dispensaries and in general they treated at least as many medical as surgical cases.

As early as 1801 there had been a Glasgow Dispensary which was run on a subscription basis ⁽¹⁾; subscribers of one guinea could recommend one patient constantly or one family occasionally ⁽²⁾. This dispensary, however, does not seem to have survived the second decade of the century. Dr. A. MacFarlane, a senior district surgeon in City parish, commented in 1828 that the system of parochial surgeons for the sick poor worked so well "that it has wholly superseded the necessity for the establishment of charitable dispensaries" ⁽³⁾. Whether this really was the case is unclear for until vital registration began in 1855 there was no accurate measure of mortality nor any indication of the extent of lack of medical care in Glasgow. Only after 1855 with the publication of mortality data by the Registrar General for Scotland was the scale of Glasgow mortality and the high proportion of deaths uncertified by a doctor apparent. In 1856 the medical officers of the Western Public Dispensary commented on the fact that the Registrar General's Reports showed that 25% of those who died in Glasgow had no doctor in attendance in their fatal illness, "It is to be regretted that

1. Founded by James Watt, M.D.
2. Cleland (1817), op.cit. p.233.
3. A. MacFarlane, "Report of the diseases which prevailed among the poor of Glasgow during the autumn of 1827", Glasgow Medical Journal, I (1828).

means are not taken to search out disease and that the Parochial Medical system is so defective as to admit of such a state of matters" (1) they note. Clearly by the 1850's the parochial medical system (which had been extended by the Scottish Poor Law Act of 1845) was not dealing adequately with the needs of the poor, assuming it had ever done so.

In 1837 the Celtic Dispensary was founded to give medical treatment to "poor strangers coming from the Highlands in quest of employment, but who had not acquired a settlement in Glasgow, and who therefore had no legal claim on the various charitable institutions of the city ..."(2). This dispensary for Gaelic immigrants (3) appealed to the Board of Supervision in the 1840's for financial assistance but none was forthcoming (4) and the dispensary must have closed as it does not figure in later lists of Glasgow charities.

In 1840 Charles Baird listed two other dispensaries in the city, the University Lying-in Hospital Dispensary (which treated 2,708 cases in 1840 of which 1,054 were cases of fever) and the Glasgow Lying-in Hospital Dispensary (which treated 740 cases in 1840 (5)) but these were later closed. In the 1850's and '60's there was another dispensary in Anderston, the Western Public Dispensary, but this too did not survive, because, according to Dr. Russell, there was in the 1870's only one dispensary in Glasgow (apart from the out-patient dispensaries attached to the

1. 3rd Annual Report of the Western Public Dispensary (1856), p.8.
2. 1st Annual Report of the Board of Supervision (P.P. 1847·XXVIII). Many charities limited their benefits to local people.
3. The medical officer of the dispensary was Dr. Robert McGregor. J.B. Cowan describes working for McGregor in the fever wards of the Royal Infirmary in the 1840's. A large number of the patients in the smallpox wards were Highlanders and often McGregor, with his knowledge of Gaelic, was the only member of the staff who was able to elicit a detailed medical history. J.B. Cowan "Glasgow Royal Infirmary 1847-'51" Glasgow Medical Journal, XLII (1894), 203.
4. 1st Annual Report of the Board of Supervision (P.P. 1847 XXVIII).
5. Rep. San. Com....p.172, evidence of Charles Baird.

two infirmaries), the Medical Mission (1). Perhaps the explanations for the paucity of dispensaries in mid-nineteenth century Glasgow lie in the ignorance of the level of mortality before the introduction of vital registration and the rapid growth of population which swamped existing medical services. Perhaps also it was due to the fact that many of the newcomers to Glasgow were poor Irish Catholics and the relief of aliens of a different religion was unlikely to have been a cause that appealed to the small Glasgow bourgeoisie. Thomas Chalmers had made an exception of the sick when he advocated the virtues of self-help, providence, and Christian charity in dealing with poverty; perhaps the Glasgow bourgeoisie failed to notice this distinction (2).

Table XLIX (3)

Glasgow Dispensaries

Glasgow Dispensary	1801-c.1815
Celtic Dispensary	1837-c.1847
Western Public Dispensary	1853-c.1862
Dispensary for Diseases of the Chest	1861-c.1880's
Glasgow Medical Mission Society	1868-
Anderston & Cowcaddens Medical Missions	1875-
Glasgow Public Dispensary	1876-
Anderson's College Dispensary (reconstituted in 1889 as the Glasgow Central Dispensary)	1878-

1. Russell (1876), op.cit. p.66.
2. Thomas Chalmers, a city minister who opposed the statutory relief of poverty and instituted a scheme of self-help and charity to relieve the poor in his parish. He later became Professor of Divinity at Edinburgh University and one of the leaders of the Disruption.
3. Sources, annual reports of the dispensaries and Handbooks of Glasgow Charities, op.cit. The various special dispensaries for skin, E.N.T., and eye conditions have not been included as it is general diseases, particularly respiratory and infectious diseases, with which this study is primarily concerned.

As Table XLIX shows most of the dispensaries were established in the second half of the nineteenth century. The Western Public Dispensary was founded in June 1853 at 11 Mains Street in Anderston. When it first opened "there was only one Dispensary in Glasgow ⁽¹⁾ where gratuitous advice could be obtained; and it says something for the necessity of this charity that, since then, two others have opened in the city and have been acknowledged as useful" ⁽²⁾.

The dispensary was founded to treat "the thousands in the city who never have the benefit of Medical aid at all, and thousands who suffer from too long delaying to apply for it from want of means" ⁽³⁾. One of the first medical officers was J.B. Cowan (later Professor of Materia Medica at the University) and another was Walter Leishman (later Professor of Midwifery) ⁽⁴⁾.

The staff of four medical officers attended in rotation at 2 p.m. each day, except Sundays, to prescribe for the patients ⁽⁵⁾. Most patients were "of that class which lies between the worker in full employment, and the absolute pauper who clings tenaciously to parish relief", and but for the dispensary many patients would have been quite unable to get medical treatment ⁽⁶⁾. The managers were confident "that the Dispensary in no way infringes either upon the domain of the practitioners of Medicine generally, or upon that of the Parochial Surgeons" ⁽⁷⁾. Children were often brought

1. Presumably the dispensary of the Royal Infirmary.
2. 8th Ann. Rep. West. Pub.... (1860).
3. *ibid.*
4. J.B. Cowan was the son of Robert Cowan, sometime Professor of Medical Jurisprudence at the University who had written some important essays on the epidemic and vital statistics of Glasgow. J.B. Cowan seems to have combined private practice with his dispensary work and later, after his return from the Crimea, with his lectureship in medical jurisprudence at Anderson's College (obituary of J.B. Cowan Glasgow Medical Journal, XLVI (1896), 192). He resigned from active work in the dispensary in 1860 (7th Ann. Rep. West. Pub... (1860)).
5. 1st Ann. Rep. West. Pub.... (1854).
6. 2nd Ann. Rep. West. Pub.... (1855).
7. 8th Ann. Rep. West. Pub.... (1861).

in in the last stages of untreated disease, it was reported, "In more than one instance children have been brought to the Dispensary in the last stages of severe and dangerous maladies, and who through tedious illnesses had never been seen by any Medical Practitioner" (1).

Some 50% of Glasgow's mortality at this time occurred among children under five years and this child mortality was avoidable. What was required was early medical advice and treatment. The dispensary surgeons believed that to reduce this mortality "it is imperative not only to increase the number of Dispensaries throughout the City, but to establish and maintain an Hospital specially devoted to the diseases of children".

On no point did the medical officers feel more deeply, "than on the miserable condition of the children of the poor when labouring under disease" (2). Among children under two years most of the sickness was due to what was described as "the irritation of Teething operating" on debilitated constitutions (3).

Table L (4)

Western Public Dispensary,
patients seen and conditions treated.

	Average Annual Number Patients	% with pul.T.B.	% with bronchitis	% with scrofula	% with diarrhoea
8 yrs 1853-61	829	4.0	13.1	3.0	6.6.

As Table L shows diseases of the chest and diseases of the digestive system (such as dyspepsia and diarrhoea) were among the common

1. 1st Ann. Rep. West. Pub.... (1854).
2. 5th Ann. Rep. West. Pub.... (1858).
3. 8th Ann. Rep. West. Publ..., op.cit., see below, p. 337.
4. Sources, annual reports of the Western Public Dispensary.

conditions treated. Infants seem to have suffered most from diarrhoea, an indication perhaps of poor standards of domestic hygiene. Considerable numbers of cases of bronchitis and pulmonary tuberculosis were treated. Of the latter many had reached an advanced stage "but still it was some satisfaction to the medical officers to be able to alleviate their most distressing symptoms" (1). There was obviously little hope of curing these patients. Cod liver oil seems to have been the treatment of choice for pulmonary tuberculosis and the medical officer lamented that they were unable to prescribe it, "with that liberality and freedom so necessary to ensure beneficial results", because of lack of funds (2). However the financial state of the dispensary must have improved as by 1862 they were able to supply it at cost price (3). The number of patients at the Western Public Dispensary increased from some 500 in 1855 to over a thousand a year in the early 1860's but the dispensary must have closed in the late 1860's or early 1870's as it does not appear in the list of Glasgow charities published in 1876 (4).

The Glasgow Medical Mission was one of the few medical charities in the City that actually went into the homes of the poor. It had been founded in 1868 as an offshoot of the medical mission of the Edinburgh Missionary Association with the object of encouraging a missionary spirit among students and providing medical assistance for those who were too poor to pay for it themselves but who were above parish relief (5). The Medical Mission was based at a mission hall in Havannah Street in the heart of the city which had been bought in 1872 and a second medical

1. 4th Ann. Rep. West. Pub.... (1857).
2. 3rd Ann. Rep. West. Pub...., op.cit.
3. 8th Ann. Rep. West. Pub...., op.cit.
4. Handbook of Glasgow Charities (Glasgow, 1876), op.cit.
5. K.J. Heasman, "The medical mission and the care of the sick poor in nineteenth century England", Historical Journal, VII (1964).

mission was run from leased premises in Norfolk Street on the South side. In 1877 the building in Havannah Street was sold to the North British Railway Company for £4,000; it had been bought five years previously for £1,100 and some £700 had been spent on additions and alterations. With the considerable capital sum from the sale the Mission bought a piece of land in Bain's Square, Calton and built a new mission hall there (1). With the surplus capital a site was acquired on the corner of Buchan and Oxford Streets on the south side for a purpose-built dispensary and mission hall. At first the medical mission at the dispensary hall, Havannah had a staff of one qualified doctor, two assistants, and two bible-women nurses (2). By 1888 the staff of the mission dispensaries had grown to two medical superintendents, two assistant physicians, two senior medical students, five or six bible-women nurses, and two female dispensers (3).

Table LI (4)

New cases treated by the Glasgow Medical Missionary Society

	Average Annual no.cases	% cases constitutional dis.	% cases nervous dis.	% cases respiratory dis.	% cases heart dis.	% cases stomach dis.
1880-5	17,556	17.4	3.1	23.5	1.3	18.1

A considerable proportion of the new cases treated at the dispensaries in the 1880's suffered, as they had at the Western Public Dispensary, from diseases of the stomach or from respiratory diseases (Table LI). Almost a quarter of all patients suffered from respiratory diseases and of

1. 10th Annual Report of the Glasgow Medical Missionary Society (1877).
2. Handbook of Glasgow Charities, op.cit. p.3.
3. Christie, op.cit. p.139.
4. Source, annual reports of the Glasgow Medical Missionary Society, "Constitutional diseases" includes such conditions as anaemia, scrofula, and rheumatism.

these "bronchitis, phthisis, and bronchorrhoea have been by far the most frequent" (1). Pulmonary tuberculosis (phthisis) was primarily a disease of young adults and a report talks of "The great prominence of consumptive disease in the adolescent and adult class under thirty" continuing unabated (2). In 1877 the medical officer reported that three-fifths of the total number of patients seen suffered from respiratory or constitutional diseases (3); evidently the dispensary was treating the conditions that contributed so much to mortality in Glasgow. The most common diseases treated, the report noted, "are chiefly those induced by undue exposure and insufficient food" (4). Another report refers to consumption and the wasting and strumous diseases of children being caused by "the bad sanitary conditions under which the poor live, and in their mistaken and often defective dieting" (5). Thus it was believed that much of the disease seen in the dispensary was due to lack of food caused by destitution and poverty.

The Mission's lady visitors advised mothers on child care, "We are eagerly besought to visit their homes, and our instructions as to sanitary matters are carried out to the utmost of their rude ability" it was noted (6). The nursing skills of these bible-women were no doubt improved by the presence of one of Mrs. Ranyard's nurses from London who was engaged for three months for this purpose in 1872 (7). Nevertheless, the work of these nurses was not merely concerned with the bodily ills of the sick for, "Like our Doctors, the Nurses, while seeking to fulfil in the most thorough and efficient manner their special duties, watch their opportunity to point the sin-burdened to their Saviour ..." (8).

1. 10th Ann. Rep. Glas. Med. Miss., op.cit.
2. 17th Ann. Rep. Glasg. Med. Miss. (1884).
3. 10th Ann. Rep. Glas. Med. Miss., op.cit.
4. *ibid.*
5. 17th Ann. Rep. Glas. Med. Miss., op.cit.
6. 2nd Ann. Rep. Glas. Med. Miss. (1869).
7. 5th Ann. Rep. Glas. Med. Miss. (1872).
8. 13th Ann. Rep. Glas. Med. Miss. (1880).

No doubt the existence of these dispensaries in some of the worst districts of the city was of value. In 1880 at the annual meeting of the Mission the Lord Provost attributed the recent fall in the proportion of uncertified deaths in Glasgow "to a large extent to the action of this Association and the additional Hospital accommodation which has been provided in Glasgow" (1). Yet the Mission had only very limited resources at its disposal in relation to the large population it served in the slums of Glasgow. Moreover the main purpose of the Mission was evangelism; the location of the dispensary hall was "one of the best in Glasgow for such an agency as ours, for we are surrounded by a gigantic mass of vice and disease to ply with the Word" (2). The afternoon clinics started and finished with a hymn and a prayer (3); the ills of the body and soul were treated at the same time. "After prayer the patients receive advice and medicine" (4). It was not only the heathen the Mission sought to convert, "the Irish Roman Catholic element very largely mingled with the applicants for advice," it was noted, affording the opportunity of declaring "the glad tidings of justification by faith, a simple doctrine which we could plainly see, was a new and startling to most of them" (5).

Dr. Russell concluded in 1876 that Glasgow urgently required more dispensaries, some of them purely secular like the Royal and New Town dispensaries in Edinburgh, and more domiciliary visiting (6). He showed that both Edinburgh and Liverpool had a much better provision of dispensaries than Glasgow; for Edinburgh had five dispensaries in addition to

1. 13th Ann. Rep. Glasg. Med. Miss.... op.cit.
2. 2nd Ann. Rep. Glas. Med. Miss....op.cit.
3. 7th Ann. Rep. Glas. Med. Miss. (1874).
4. *ibid.*
5. 2nd Ann. Rep. Glas. Med. Miss.... op.cit.
6. Russell (1876), *loc. cit.* p.67, and see Table LII.

those attached to hospitals and Liverpool had three ⁽¹⁾. As Table LII shows a much larger proportion of the population attended dispensaries in Edinburgh and Liverpool than in Glasgow.

Table LII (2)

Number and proportion of patients treated in three cities in 1874 (excluding midwifery).

	Glasgow		Edinburgh		Liverpool	
	No. treated	% pop. treated	No. treated	% pop. treated	No. treated	% pop. treated
Treated at home	1556	0.2	9234	4.3	20575	4.0
Treated in dispensaries	29409	5.5	27811	13.1	92578	18.1
Treat in Hospitals	<u>6654</u>	1.2	<u>5344</u>	2.5	<u>7463</u>	1.4
Total	<u>37619</u>	7.1	<u>42389</u>	20.0	<u>120616</u>	23.6

Russell's view about Glasgow's lack of dispensaries was by no means unique. Mathew Charteris, Professor of Medicine at Anderson's College from 1876 and later Professor of Materia Medica at the University, believed that the high mortality in the city could be reduced by, "the establishment of free public dispensaries in our poorer districts, where medicine and advice would be given gratuitously" ⁽³⁾ or by enlarging the parochial medical system ⁽⁴⁾. Glasgow would require ten dispensaries sited in districts like Cowcaddens and Bridgeton, he argued, to achieve something approaching the London dispensary system, and these "reach a class of people not exactly paupers, but persons too poor to pay for prolonged medical attendance" ⁽⁵⁾.

1. Russell (1876), loc.cit. pp.39-40.
2. Adapted from Russell, loc.cit. p.41.
3. M. Charteris, "The excessive mortality of Glasgow, its causes and remedies" read to the Glasgow Philosophical Society, 1875.
4. But as the City Parochial Board, commenting on Russell's Report Upon Uncertified Deaths noted, the poor law did not provide medical care for any other than paupers, and rightly so. "It becomes indeed an object of the highest importance to the Community to provide from other sources for necessities which solely arise and occur in sickness so that the individual may in health resume his position in the ranks of the self supporting without the taint of pauperism. In this the source of such aid has always been Charity ..." G.C.A. D HEW 1 5 3, p.33.
5. Charteris, op.cit.

One general dispensary which Dr. Russell did not include in his discussion was the Dispensary for Diseases of the Chest which had been founded in 1861 ⁽¹⁾. In 1866 this dispensary treated 1,248 patients, of whom 437 were new cases. Phthisis pulmonalis (pulmonary tuberculosis) was the most common disease treated in that year (there were 128 cases). Diseases of the chest required patients to be more carefully examined and thoroughly investigated than other patients, an annual report notes, and "This is impracticable in general dispensaries, where the applicants for relief are so numerous and so varied in character" ⁽²⁾. The Dispensary for Diseases of the Chest was still in existence in the late 1880's but does not appear in the list of Glasgow charities of 1907 ⁽³⁾.

From the mid-1870's the number of dispensaries in Glasgow did begin to increase. An Anderston Medical Mission and a Cowcaddens Medical Mission were founded in 1875 ⁽⁴⁾ and in 1876 the Glasgow Public Dispensary was set up. This dispensary provided free medical advice for those unable to pay for medical treatment, but patients were expected to make some contribution to the cost of their medicines ⁽⁵⁾. Medical students, supervised by the dispensary doctor, visited the homes of those too ill to attend the dispensary themselves. In 1888 2,630 patients were seen at the dispensary but only 629 in c.1907.

1. Handbook of Glasgow Charities, op.cit.
2. 5th Annual Report of the Dispensary for Diseases of the Chest (1867), the only report extant.
3. Christie, op.cit. p.140.
4. Russell (1876), loc.cit. p.38, no reports of these dispensaries are available.
5. Handbook of Glasgow Charities, op.cit. p.72 & R.C. on Poor Laws (P.P. 1910, XLVI) Appendix CLXXXVI (A). No reports of this dispensary have survived. With the exception of this Glasgow Public Dispensary which had been founded to see how acceptable "an institution, embracing provident features" would be to the "poor of the city who are not in receipt of parochial relief" (Glasgow Herald, April 5 1889) there was no contributory, provident dispensary in Glasgow like the Stockton and Darlington Dispensary described by R.P. Hastings, "A nineteenth century dispensary at work", Local Historian X (1973), in spite of the advocacy of Dr. J. Christie who regarded provident dispensaries as a means of promoting preventive medicine, see his paper "On provident dispensaries as a means of promoting Public Health", Proceedings of the Philosophical Society of Glasgow, XII (1879-80). The Royal Commission on the Poor Law commented on the absence of provident dispensaries in Scottish cities, Report on Scotland (P.P. 1909), XXXVIII), p.263.

Perhaps a more significant step in the provision of medical care for the poor was the opening of the Anderson's College Dispensary in 1878. The dispensary was housed in premises owned by the College and was open from 2-3 p.m. each day and from 3-4 on Tuesdays and Thursdays for diseases of women and children. Volunteer doctors and medical students gave advice and medicines were prescribed and dispensed, if necessary, without charge. Patients who were too ill to attend the dispensary were visited by medical students in their own homes (senior students of the College instructed the more junior students who accompanied them on these visits) ⁽¹⁾. This system appears to have been modelled on the pattern of the Edinburgh dispensaries ⁽²⁾, and as a local Member of Parliament noted a system of public dispensaries on the lines of those in Edinburgh "is the only thing which can possibly overtake the case of the multitude of

the sick poor of Glasgow who cannot obtain admission to the Infirmaries, who will not go into the Poorhouses, and who have no money for medical attendance at their own home" ⁽³⁾.

At first the dispensary had a staff of six surgeons and six physicians for general diseases and two physicians for diseases of women and children. Later the staff increased to include skin and eye physicians, a medical officer to superintend the domiciliary visiting, a dispenser, and an attendant ⁽⁴⁾. The volunteer medical staff provided a team to staff the dispensary by rotation.

The Anderson's College Dispensary was reconstituted as the Glasgow Central Dispensary in 1889 when the medical school moved to Gilmorehill ⁽⁵⁾. Thereafter, though some medical students continued to be given clinical

1. 1st Annual Report of the Anderson's College Dispensary (1879).
2. Russell (1876), loc.cit. p.39.
3. Dr. Cameron M.P., letter to Anderson's College Dispensary, 1st Ann. Rep. op,cit.
4. 4th Ann. Rep. Ander... (1882).
5. Handbook of Glasgow Charities (1907), op.cit. p.89.

instruction, the domiciliary visiting by the students seems to have ceased. In 1892 the dispensary moved to ground floor premises at 78 George Street; the accommodation here consisted of two consulting rooms, a waiting room, and a dispensary ⁽¹⁾. In 1902 the flat above was leased and an operating room added ⁽²⁾. The move, it was noted, brought the dispensary nearer to the High Street and "The advantages of the change are apparent in the steady increase in the number of patients, all belonging to the necessitous class, as well as in the greater comfort of the staff" ⁽³⁾.

The chairman of the governors was the ubiquitous Dr. J.B. Russell who took a great interest in the work of the organisation ⁽⁴⁾. The staff still consisted of general physicians and surgeons and various specialists who all gave their services without charge, and there was one paid attendant. In addition in 1894 one of the district nurses of Mrs. Higginbotham's Glasgow Sick Poor and Private Nursing Association was appointed to help in the clinic for a few hours each day ⁽⁵⁾.

Table LIII ⁽⁶⁾

Patients treated at Anderson's College and the Glasgow Central Dispensary

	Average annual no. patients	% patients surgical	% patients medical	% other ⁽⁷⁾
1879-86 ⁽⁸⁾	9791	20.7	55.7	23.0
1890-4 ⁽⁹⁾	6285	14.7	41.6	43.0
1895-9	14159	24.3	34.9	40.1
1900-4	17397	23.6	37.4	38.5

Table LIII shows the increasing number of patients treated at the dispensary each year and that more medical than surgical patients were seen.

1. 4th Annual Report of Glasgow Central Dispensary (1892).
2. 14th Annual Report of Glasgow Central Dispensary (1902).
3. 4th Annual Report of Glasgow Central Dispensary, op.cit.
4. Russell (1905), loc.cit. biographical note by A.K. Chalmers, p.xxvii.
5. 21st Annual Report of the Glasgow Sick Poor and Private Nursing Association (1896).
6. Source, Annual Report of the Anderson's College and the Glasgow Central Dispensary: no details are given of the diseases treated.
7. This includes diseases of women, of children, skin diseases, and E.N.T. and urinary conditions.
8. Anderson's College Dispensary.
9. Glasgow Central Dispensary.

The dispensary was evidently helping to supply a real need for medical treatment for the poor. As Dr. Russell noted at the annual meeting in 1891, "In the matter of situation, it was more convenient than any other similar institution in the city to the class of people who most required medical assistance and whom one most desired to help. Anyone looking at the people who attended the dispensary would be perfectly satisfied that no one came to it who could reasonably be expected to obtain advice and medicine in the ordinary way by paying for it" (1).

Many of the patients suffered from medical conditions and as the dispensary directors noted there was no doubt that "all this work is a very important ministrations to those forms of sickness which contribute most highly to the mortality of the City" (2).

Whether the work of these few voluntary dispensaries contributed much to the fall in Glasgow mortality is another matter.

Russell had complained in 1876 that the hospital out-patient departments were tending to see more surgical than medical cases while the great causes of mortality and morbidity were medical, not surgical (3). But as Table LIV shows this changed later in the century and out-patient departments (which like the other voluntary dispensaries provided medical advice and medicines) gave many more medical than surgical consultations, as well as treating E.N.T., eye, skin, and gynaecological conditions.

1. Glasgow Herald, Jan. 29 1891, report of annual meeting of Glasgow Central Dispensary.
2. 5th Ann. Rep. Glas. Cent.... (1894).
3. Russell (1876), op.cit. p.44.

Table LIV (1)

Consultations at infirmary out-patient departments.

Year	Average Annual No.	% Medical	% Surgical
Royal Infirmary ⁽²⁾			
1860-9	12196	53.4	46.3
1870-9	16571	46.0	52.5
1880-9	23681	48.2	51.7
1890-9	28109	51.2	48.7
1900-9	43657	51.5	48.4
Western Infirmary ⁽³⁾			
1874-9	5438	43.1	46.1
1880-9	22679	56.1	25.2
1890-9	35244	47.0	32.9
1900-9	93984	27.2	38.1
Victoria Infirmary ⁽⁴⁾			
1891-1900	9998	50.0	36.2
1901-10	14170	42.3	21.4
Victoria Infirmary, Bellahouston (Tradeston) Dispensary ⁽⁵⁾			
1891-1900	11871	41.3	21.8
1901-10	27625	33.9	18.5

In the first decade of the twentieth century some 40,000 cases were probably treated each year by the Glasgow Central Dispensary and the Medical Mission⁽⁶⁾, less than the number treated in the out-patients department of the Royal Infirmary alone. Clearly a much larger number of cases were being seen in infirmary out-patient departments than in the other voluntary dispensaries in the city and 90% of these patients came from Glasgow. As Table LIV shows the number of out-patients consultations increased enormously after 1860, far outstripping the rate of growth of the city's population which merely doubled between 1860 and 1910.

A certain amount of medical treatment for children was provided in the out-patients department of the Children's Hospital. From the time of the hospital's foundation it had been recognised that an out-patient

1. Source, annual reports of the Royal, Western and Victoria Infirmaries.
2. In addition there were E.N.T., gynaecological and other special clinics.
3. The total includes gynaecological, skin, E.N.T. and other cases.
4. *ibid.* The dispensary at the Victoria was only supposed to be for those who were unable to pay for medical treatment, the medical staff were told to ask patients whom they thought ineligible "to bring a line from a shopkeeper or other known person in their district" (GHB 9, Minutes 1892-3, p.21 & see GHB 9, 1897-1900, p.136).
5. *ibid.*
6. This is an estimate based on data from earlier years.

dispensary was required since "A Dispensary specially destined for children would attract parents, and disease in the initiatory stages might be checked before it became incurable" (1). As a later report noted medical diseases were the chief cause of the high mortality in Glasgow children "and the poor require to be taught to avail themselves more readily of the help of the Hospital in such cases. This can only be done by means of the Dispensary" (2). A hospital dispensary was opened in Cowcaddens in 1888 and as had been hoped it was attended largely by children with medical conditions thus enabling the hospital to admit the more serious cases direct to the wards (3). By 1890 61% of medical and 43% of surgical cases were being admitted to the wards from the dispensary, "an evidence of the correctness of the argument for the erection of the Dispensary as a feeder, especially of medical cases which were previously slow to apply" (4). There were two resident dispensary sisters who helped the medical staff and visited cases at home to give advice on management, do dressings, and visit convalescents. "There can be no doubt that much good is done by these skilled and kindly Sisters," it was noted, "not only in relief of suffering by their own services, but in the education of mothers in the management of sick children and in the maintenance of domestic cleanliness and wholesomeness" (5)

1. 2nd Ann. Rep. Glas. Hosp.... (1884), J.B. Russell was instrumental in selecting the site for the dispensary and its plan, GHB 7 1 3, p.31 & 60.
2. 4th Ann. Rep. Glas. Hosp.... op.cit.
3. 7th Ann. Rep. Glas. Hosp.... op.cit. and see Table LV.
4. 8th Ann. Rep. Glas. Hosp.... op.cit.
5. 6th Ann. Rep. Glas. Hosp.... op.cit.

Table LV (1)

New cases seen at the Dispensary of the Glasgow Hospital for Sick Children

Year	Av.ann.no. medical cases	% total cases	Av.ann.no. surgical cases	% total cases	% total that were cases of:		
					bronchitis pneumonia etc.	rickets	diarrhoea gastric catarrh
1890-9	4126	64.7	2245	35.2	14.5	6.4	10.3
1900-9	6943	64.7	3773	35.2	10.1	9.5	7.8

Several conclusions emerge from this discussion. First many more patients were seen in the out-patient departments of the infirmaries than at the other voluntary dispensaries in Glasgow; it was infirmary out-patient departments that provided most of the free medical advice in the city that was available to those who were not paupers. Secondly the out-patient departments treated far more patients than were admitted to the wards of the infirmaries as in-patients and they gave slightly more medical than surgical consultations (at a time when many more surgical than medical patients were being treated in the infirmary wards). It was the infirmary out-patient departments, therefore, that gave most of the free, clinical advice on medical conditions and these medical conditions included respiratory diseases, then the major cause of mortality in the city. Nevertheless at this time there was no effective treatment available for pulmonary tuberculosis and the other common respiratory diseases whose decline account for such a significant part of the overall mortality decline in this period. No doubt infirmary out-patient departments and other dispensaries provided palliative treatment for these conditions but this treatment cannot have contributed significantly to the decline in mortality from these diseases. Nor can the dispensaries have contributed much to the decline in infectious diseases, the other group of diseases

1. Source, annual reports of the Glasgow Hospital for Sick Children.

accounting for much of the overall mortality decline in Glasgow in this period, since cases of infectious disease were referred to the municipal infectious disease hospital for treatment.

9. Other Medical Services(1) District Nursing

In the last quarter of the nineteenth century a limited amount of nursing care for the Glasgow sick poor was provided by two district nursing associations, the non-denominational Higginbotham Sick Poor Nursing Association and the Roman Catholic St. Elizabeth Home for District and Private Nursing. The former was founded in 1876 as the Association for Providing Trained Nurses for the West of Scotland, was renamed the Glasgow Sick Poor and Private Nursing Association in 1885, and became the Higginbotham Sick Poor Nursing Association in 1905. The latter was founded in 1893 to provide gratuitous trained district nurses to attend members of the Catholic sick poor of Glasgow ⁽¹⁾. These associations provided free nursing care for the poor in their own homes as well as supplying private nurses for middle class families. Regular annual reports, containing details of the work of the association and of the number and type of cases the district nurses attended, are available for the Higginbotham Sick Poor Nursing Association. For the St. Elizabeth Home only the 1895 annual report is extant.

District nursing, which was already well established in some English cities, was pioneered in Scotland by Mrs. Mary Orrell Higginbotham ⁽²⁾ the English-born wife of James Higginbotham, a partner in the Glasgow firm of Messrs. C. Todd & Higginbotham, Sons and Co., who were merchants and calico printers ⁽³⁾. Mrs. Higginbotham had come to Glasgow in the early 1870's and had persuaded her husband to consent to

1. According to the Post Office Directory of 1895-6 (p.131) private nurses could also be provided and there was accommodation in the St. Elizabeth Home for a limited number of paying in-patients.
2. L. Dock, ed. A History of the Nursing Profession (1912), III, p.23.
3. Newspaper cutting of Dec. 12 1899 in Grieve Scrapbook, M.L. 3 B, and see Appendix VII.

her training as a nurse at the Western Infirmary. On qualifying she had worked at first at Miss McAlpin 's Glasgow Training Home for Nurses ⁽¹⁾ but her main concern was with the sick poor and so she soon left, took rooms in Sauchiehall Street. There in 1876 she founded the Association for Providing Trained Nurses for the West of Scotland ⁽²⁾.

At first the work of the Association was financed by a few personal friends but soon the district nursing work was being supported by the surplus made by the private nursing work as well as by voluntary contributions ⁽³⁾. In the 1890's Barony Parochial Board made at least one contribution of £100 towards the district work of the then Glasgow Sick Poor and Private Nursing Association and in the 1900's annual grants were made by the Parish of Glasgow to both the St. Elizabeth Home and the Higginbotham Sick Poor Nursing Association ⁽⁴⁾.

From the Nurses' Home in a leased house at 200 Sauchiehall Street the Glasgow Sick Poor and Private Nursing Association sent out private nurses to nurse the middle classes (for a fee) as well as district nurses to care for the sick poor in the area. The Association's nurses were trained at local hospitals ⁽⁵⁾. The work of the Association was supervised by the Lady Superintendent, Mrs. Higginbotham and the way in which the organisation was run resembles and appears to have been modelled on that of the Liverpool Training School and Home for Nurses which had been founded by William Rathbone in 1863 ⁽⁶⁾. Early in 1875 Dr. J.B. Russell had written enthusiastically of the Liverpool district

1. A private nursing home.
2. Obituary, Glasgow Herald Dec. 17 1889.
3. The work of the St. Elizabeth Home was also supported in this way.
4. See G.C.A. D HEW 1 2 9, p.631 and D HEW 1 2 17, p.156.
5. At first the probationer nurses were trained at the Royal Infirmary, but later also at the Paisley Infirmary and the Glasgow parish hospitals. They learned fever nursing at Belvidere Hospital, 3rd Annual Report of the Association for Providing Trained Nurses in the West of Scotland (1878) and 12th Annual Report of the Glasgow Sick Poor and Private Nursing Association (1887).
6. M. Stocks, A Hundred Years of District Nursing (1960), pp.26-39.

nursing scheme ⁽¹⁾ and by 1880 he was on the executive of the new Glasgow district nursing association ⁽²⁾.

At first the Association was only able to provide district nurses in the Anderston and Finnieston districts ⁽³⁾ but soon more nurses were employed and more districts could be covered; by 1877 two new districts, Cowcaddens and an area on the south side, were added ⁽⁴⁾. By 1879 there were five of the Association's district nurses and two midwifery sisters at work in the city ⁽⁵⁾ by 1885 ten district nurses, six midwives, and fifteen untrained nursing assistants who acted as night nurses when these were required ⁽⁶⁾. The district nursing work continued to expand, although in 1889 the resources of the association were found to be over-extended and it was decided that the midwifery work should be discontinued as the Maternity Hospital was extending its domiciliary work at this time and it was considered that midwifery was the part of the Association's work that could be abandoned "with least disadvantage to the poor ..."⁽⁷⁾. By 1897 24 district nurses, all with two years of hospital training, were employed, and by 1901 there were 27 district nurses, with two in each of the outlying districts of Govan, Maryhill and Springburn ⁽⁸⁾. In these districts which were far from the main Nurses' Home (now at 21 Bath Street) local committees like the Maryhill District Nursing Association paid the cost of the board and lodging of the nurses while the Higginbotham Sick Poor Association provided their salaries and uniform ⁽⁹⁾.

1. Russell (1876), loc.cit. p.50.
2. 5th Ann. Rep. Assoc. for Provid.... (1880).
3. 1st Ann. Rep. Assoc. for Provid.... (1876).
4. 2nd Ann. Rep. Assoc. for Provid.... (1877).
5. 4th Ann. Rep. Assoc. for Provid.... (1879).
6. 11th Ann. Rep. Glas. Sick Poor (1885), there were also the private nurses.
7. 14th Ann. Rep. Glas. Sick Poor (1889).
8. 22nd Ann. Rep. Glas. Sick Poor (1897 and 26th (1901)).
9. Handbook of Glasgow Charities (1907), op.cit. p.86.

The nurses were provided with the medical and surgical equipment necessary for their work; where required patients could be supplied with water pillows, air beds, mackintosh sheets etc. (1). The nurses also distributed flannels and warm clothing and provided invalid food like beef tea, milk, and stimulants (alcohol) to those with chronic complaints. Thus those "in the last stages of disease, when they cannot take ordinary food, are often supplied with many little comforts necessary to their dying condition" (2). For those who were less gravely ill the Association appealed for subscribers' lines for the infirmaries and convalescent homes (3).

Table LVI (4)

The most common conditions treated each year by the Higginbotham Sick Poor Nursing Association.

	1880-4	1885-9	1890-4	1895-9	1900-4	1905-9
	%	%	%	%	%	%
Consumption	8.0	5.1	7.5	7.1	6.3	5.0
Inflammation of various organs	5.3	2.4	4.9	6.8	9.0	10.2
Diseases of women	3.6	0.9	4.4	8.8	16.1	19.8
Heart dis & dropsy	2.9	1.6	3.1	2.8	3.7	3.9
Diseases of bone	7.1	4.3	5.8	5.9	4.2	3.3
Cancer and tumours	3.8	2.1	3.8	3.5	5.3	6.0
Ulcers	12.3	12.5	19.7	19.0	13.0	8.8
Abscesses	5.1	4.4	7.0	9.6	10.3	12.5
Accidents	9.7	7.5	12.8	13.0	9.4	7.3
Paralysis and bed sores	3.6	2.8	4.7	6.0	7.5	8.1
Acute bronchitis and rheumatism	2.9	1.9	3.1	2.4	2.5	2.4
Chronic bronchitis	1.7	1.2	2.7	2.9	3.2	2.4
Other	<u>34.0</u>	<u>53.3</u>	<u>20.5</u>	<u>12.2</u>	<u>9.5</u>	<u>10.3</u>
	100.0	100.0	100.0	100.0	100.0	100.0
Total no. treated	1293	2522	1831	2563	2762	3010

1. 5th Ann. Rep. Assoc. for Prov.... op.cit.

2. *ibid.*

3. Note inside the 6th Ann. Rep. Assoc. for Prov.... (1881).

4. Sources, Annual Reports of the Association for Providing Trained Nurses and its successors.

As Table LVI shows the most common conditions treated by the district nurses were such chronic conditions as consumption, cancer, ulcers, abscesses, paralysis etc., conditions for which there was no effective treatment at this time. Most of these conditions, with the exception of bronchitis and pulmonary tuberculosis, did not contribute significantly to the general mortality decline in this period. In any case, as Table LVI shows, the number of patients with these two conditions that were treated was very small ⁽¹⁾ and it is also obvious from the very high mortality rate of consumptive patients (TableLVIII) that the cases treated must have been in the terminal stages of the disease.

Table LVII (2)

Higginbotham Sick Poor Nursing Association;
annual average percent of patients -

	Transferred to hospital	Recovered	Mortality
1875-8	9.7	38.1	18.9
1879-83	7.7	48.1	16.6
1884-8	5.3	69.6	13.0
1889-91	6.4	37.2	18.0
		Convalescent	
1892-4	6.9	45.3	18.8
1895-9	7.0	49.6	17.4
1900-4	7.5	47.9	20.6
1905	8.2	51.9	19.2

Table LVIII (3)

Annual average percent of consumptive patients -

1875-8	10.7	-	54.3
1879-82	9.6	3.7	55.8
1884-8	5.8	2.3	61.2
1889-91	2.8	-	65.2
		Convalescent	
1892-4	5.8	7.1	72.7
1895-9	3.1	7.9	76.2
1900-4	4.1	4.8	78.9
1905-8	7.3	5.0	76.5

1. And the bronchitis figures also include rheumatism.
2. Sources, Annual Reports of the Association for Providing Trained Nurses and its successors.
3. Sources, Annual Reports of the Association for Providing Trained Nurses and its successors.

Although annual reports of the Association show the 50% of all patients treated "recovered" (Table LVII) between the years 1875 and 1891, thereafter the classification of this group was changed to "convalescent" which was probably a more accurate description. It seems likely, therefore, that the main contribution of the Higginbotham Sick Poor Nursing Association (and of the St. Elizabeth Home which treated much the same sort of cases) was in alleviating the suffering of those with chronic conditions. As an annual report notes, "a large proportion of those who

come under the care of the District Nurses suffer from incurable diseases, they can do little more than from day to day bring comfort and relief to the dreary homes, where without them the patients would lie in dirt and misery" (1).

As Tables LVII and LVIII show only a small proportion of cases were transferred to hospital since many of the patients were "sufferers from consumption, cancer, and other chronic, or incurable diseases. Such patients are unsuitable for treatment in an Infirmary" (2).

Undoubtedly the district nursing associations did much to alleviate suffering; a doctor in a letter to the Glasgow Herald refers to the "great and good work which the nurses are doing in our midst amongst those the light of whose lives have gone out in the darkness of disease and poverty" (3). It should be said, however, that other medical men who worked among the poor believed that housing conditions were so bad that the sick were better cared for in hospital than in their own homes (4).

1. 7th Ann. Rep. Assoc. for Prov.... (1882).
2. 2nd Ann. Rep. Assoc. for Prov.... op.cit.
3. Letter signed "M.D.", Glasgow Herald, Dec. 27 1886.
4. G.C.A. D HEW 1 5 4, City Parish, Health Committee Minutes, but the alternative was admission to the poorhouse hospital wards.

By 1905 some 5,000 patients were being nursed at home in Glasgow by trained nurses of the two nursing associations, but this is unlikely to have made much impression on general mortality because of the relatively small number of cases involved and the high mortality rate of those with pulmonary tuberculosis (the most important diseases in relation to the general mortality decline that was treated by the district nurses). The significance of the nursing associations was in providing nursing care for the chronic sick and dying. In the late 1890's the associations were caring for some 300 cases of pulmonary tuberculosis each year ⁽¹⁾ at a time when there were 1,400-1,500 deaths annually from the disease in the city. This must have been a not insignificant proportion of the total cases of terminal pulmonary tuberculosis. Nursing care was also provided for patients with many other serious, debilitating conditions.

1. Most of which would have been in the last stages of the disease.

(ii) General Practitioners

The widespread belief among medical men in Glasgow in the late 1880's was that the profession was being flooded by an influx of young men and as a result local doctors were finding it increasingly difficult to make a decent living. In the summer of 1889 the Glasgow Herald published a correspondence on the subject of medical overcrowding after printing a leading article, at the time of the annual medical graduation at the university, which pointed out that the supply of doctors was far above the apparent demand ⁽¹⁾. As one correspondent noted, year after year young men qualified in medicine and put up their brass plates,

"But alas, these brass plates The beginning and end of the whole matter is their number.

The profession is practically packed full. For every one medical practitioner that dies in this country half a dozen young men take his place ..." ⁽²⁾.

Table LIX ⁽³⁾Physicians and surgeons in Glasgow per 10,000 population

Year	Number of physicians and surgeons	Physicians and surgeons/ 10,000 population
1861	251	6.3
1871	731 ⁽⁴⁾	15.3
1881	244 ⁽⁵⁾	5.0
1891	444	7.8
1901	550	7.2
1911	520	6.6

1. Glasgow Herald, July 23 1889.

2. ibid. July 25 1889.

3. Sources, successive censuses of Scotland.

4. Includes an unspecified number of druggists but not the 253 physicians, surgeons, and druggists aged under 20 years.

5. Excludes 411 medical students and assistants.

The relative provision of doctors in Glasgow is a measure of the medical care available in the city and a significant increase in the ratio of doctors to population in this period would indicate that medical care was becoming more widely available. But as Table LIX shows this was not the case; the ratio of doctors to population fluctuated only slightly ⁽¹⁾. Why was it that local doctors believed that their relative number was increasing and the profession getting overcrowded when in fact the ratio of doctors to population in Glasgow remained fairly stable? A likely explanation is that in Glasgow, where much of the population was poor, there was a limited demand for medical treatment because many people could not afford to pay medical fees and because free treatment was available for all at the outpatients departments of the infirmaries and in the dispensaries. Doctors were therefore competing for the patronage of the limited number of patients who could afford to pay high fees with the result that some of them undercut the established scale of charges; thus there were "low fees and no fees, and various kinds of unprofessional conduct, all arising from the struggle for existence. If men cannot get a shilling they must take a sixpence ..." ⁽²⁾. As another observer remarked at the end of the century, "The best practice went to a few who had grown in reputation with the city's growth, and most of the others had but a poor living" ⁽³⁾.

In the scale of recommended charges laid down by the Glasgow Southern Medical Society in 1870 fees were related to patients' income.

1. It is worth noting that census data on medical practitioners is not directly comparable over a period; the figures for 1871, for example, are inflated by the inclusion of a considerable number of druggists while later census list druggists and apothecaries separately.
2. Glasgow Herald, 25 July 1889.
3. British Medical Journal (1897), 1627.

The fee for a doctor's visit ranged from £1 ls. for someone earning over £1,000 p.a. to 2s.6d. for those earning under £100; other fees were scaled accordingly with midwifery charges ranging from £7 7s. to £1 ls. ⁽¹⁾. Fees in the scale adopted by the Society in 1880 were of a similar level ⁽²⁾. There is evidence, however, that many doctors charged considerably less than these recommended scales, especially in the poor districts of the city. One shilling was a common charge for a medical consultation in the late 1860's. Dr. R. Bell recorded that when he began in practice in 1868, holding surgeries in a chemist's shop in a poor district of Glasgow he charged 1s. for consultations, 1s.6d. to 2s. for visits and half a guinea for confinements ⁽³⁾. A correspondent to the Glasgow Medical Examiner in 1869 refers to fees of 1s. for ordinary visits and 10s.6d. for midwifery being paid by labouring men with wages of under 20s. a week ⁽⁴⁾. By the end of the

1. Minute Book Glasgow Southern Medical Society, No. 2, 1870.
Table of Fees.

	<u>Incomes</u>	<u>Single visit</u>	<u>Ordinary midwifery</u>
Class I	£1,000+	£1 ls.	£7 7s.
Class II	£500-£1,000	£1 ls.	£5 5s.
Class III	£250-£500	10s.6d.	£3.3s.
Class IV	£100-£250	5s.	£1 ls.
Class V	under £100	2s.6d.	£1 ls.

2. Transactions Glasgow Southern Medical Society, 1893-4, No.3.
Tariff of fees adopted by Glasgow Southern Medical Society, Feb.1880.

	<u>Income</u>	<u>Rent</u>	<u>Ordinary visit</u>	<u>Midwifery</u>
Class I	under £200	under £25	2s.6d.-3s.6d.	£1 ls.-£2 2s.
Class II	£200-£400	£25-£40	3s.6d.-5s.	£2 2s.-£4 4s.
Class III	£400-£800	£40-£80	5s.-10s.6d.	£4 4s.-£7 7s.
Class IV	£800+	£80	10s.6d.-21s.	£7 7s.

3. R. Bell, Reminiscences of an Old Physician (1924), p.34. These charges were paid by patients in advance, which was helpful to a young doctor who usually had to wait until Christmas for his middle-class patients to settle their annual accounts. Some patients resented the way in which these yearly or half-yearly accounts were presented; "the amount is set down in one round sum, as if it should never be questioned, and if an attempt at the latter is made a good deal of cold water is thrown upon it ...", a correspondent noted, Glasgow Herald, Jan. 15 1892.
4. Letter signed "A plebian", Glasgow Medical Examiner, IV (1869), 96. He comments that this "is as much as they can well pay, it is certainly more in proportion to their incomes than we get from other classes."

century, however, in a desperate attempt to attract patients many surgeries were said to be charging only 6d. for a consultation (1).

Many of the doctors who struggled to make a living from treating the poorer members of the community objected very strongly to the existence of the outpatient departments of the infirmaries and the other dispensaries which gave medical consultations without charge to all comers (2). This subject was often raised in local medical journals: in 1869 the Glasgow Medical Examiner pointed out that "if people get for nothing what under ordinary circumstances they are expected to pay for, habits of frugality are apt to be abandoned and the money which ought to be saved for the exigences of the sick-bed or accident are diverted to less beneficial channels".

If there were dispensaries they should treat only those of the really poor who were not covered by the poor law.⁽³⁾ Later the journal noted that most of those who attended the dispensaries were from "the middle and the artizan class - to that class on which the poorer and younger practitioner is mainly dependent, and who are wont and able to pay his modest recompense"⁽⁴⁾. This matter continued to be a source of contention for in 1887 Dr. James Erskine was complaining in the Glasgow Medical Journal that patients treated at the dispensaries "form the usual run of general practice". Local doctors therefore suffered as a result of dispensaries

1. A correspondent who signed himself "Glasgow M.D." refers to "6d. dispensaries", Glasgow Herald July 26 1889. Another medical correspondent, Dr. R. Rentoul of Liverpool (author of Voluntary Medical Charities (1891) and described by Brian Abel-Smith as "one of the most militant defenders of general practice" op.cit.p.15), refers to young doctors being "compelled to try to secure the industrial classes by charging 3d. to 6d.", Glasgow Herald 27 July 1889.
2. See above, Chapter 8.
3. Anon. "Hospital administration and plurality of appointments", Glasgow Medical Examiner, I (1869), 10.
4. Anon. "Special dispensaries", Glasgow Medical Examiner I (1869), 79.

providing treatment for all "for the clientele wander thither and deprive them of fees they can pay" (1).

The opposition to dispensaries continued; as was evidenced by the vigorous protests of doctors in Anderston in 1906 when it was proposed that a charitable dispensary should be set up in this crowded, working class district (2).

It is not possible to say whether the experience of the Glasgow medical profession was typical as there are no data available on the provision of doctors either nationally or in other cities. It does appear that in Glasgow there was no marked increase in the number of doctors in practice (in relation to the population of the city) although local medical men were convinced that competition for patients was increasing and that the profession was overcrowded. This rather suggests that general practitioners were concerned with attracting patients who could afford to pay high fees and perhaps these patients took up a disproportionate amount of their time. The great mass of patients who could

1. Glasgow Medical Journal, XXVII (1887), 280.
2. Memorial by District Doctors, "The proposed dispensary in Anderston", Glasgow Herald, Oct. 26 1906 and see Minutes of Council of Glasgow Southern Medical Society, 1 (1895-1910), 20 Nov. 1906. But as "Medical Man" pointed out in the Herald on this occasion the success of medical charities in Glasgow was the result of support from the medical profession, "whenever there is a vacancy, even a minor appointment, in such institutions, medical men literally tumble over one another in their eagerness to secure it. The reason for this lies in the surface. A hospital appointment, however humble, enables the incumbent to pose before the more ignorant of his clients as a "professor" to the great gain of his practice and ultimately of his pocket" ("Medical Man", Glasgow Herald Dec. 13, 1906). For a general discussion of contemporary professional prospects in the medical profession see C.O. Hawthorne, "Professional Prospects. Medicine", Glasgow University Magazine, 8 (1889), 1-3. He notes "Perhaps the best advice which could be given to a young man intending to enter the profession of medicine would be - See that your father is a doctor with a good practice".

afford to pay only 6d. for a consultation (1) probably received very cursory attention. Thus not only did the amount of general medical care available (outwith the hospitals) not increase in this period but the middle and upper classes probably received a disproportionate amount of attention from the city's medical men. Needless to say there were few if any effective medical treatments available to contemporary doctors.

1. Some thrifty working people insured against medical expenses.

Members of Friendly Societies, such as the Loyal Order of Ancient Shepherds which had some 140 branches in the Glasgow area by 1906 (R.C. on Poor Laws (P.P. 1910, XLVI, Appendix VI), p.668 & Q.57960), paid a capitation grant of perhaps three or four shillings a year to the medical officer of the society for a year's medical care, and see Minutes of Council of Glasgow Southern Medical Society, 1 (1895-1910), 22 March 1909). The Society agreed to support the Partick Medical Society in insisting that members of medical clubs should pay not less than 4s.

(iii) Poor Law Medical Officers

Apart from the medical care provided, for a fee, by general practitioners the parishes employed district medical officers but these doctors were only concerned with paupers. Even before the passing of the Poor Law Amendment Act in 1845 both City and Barony parishes had employed district surgeons from among local G.P.'s to attend to the medical needs of the sick poor. City parish had been divided into seventeen districts, each with a district surgeon who was paid 20 guineas a year. Medicines were also supplied and the surgeons were empowered to order wine and cordials for their patients when these were required. Barony parish, likewise, employed district surgeons "whose duty it is to attend the poor on receiving a line or order for that purpose from the superintendent or one of the elders ..." (1). The Act of 1845 made the provision of medical care for the poor mandatory, and a condition of qualifying for a share in the Medical Relief Grant introduced in 1848 was that parochial boards "shall name legally qualified medical officers, at fixed salaries, to attend the poor. That these officers shall be bound to obey all the rules and regulations which the Board of Supervision make for their guidance ..." (2). The Rules as to Medical Relief of the Poor laid down that "All poor persons who stand in need of medical relief shall be duly and punctually attended by a competent Medical Practitioner, and supplied with medicines and medical and surgical appliances of such quality and to such an extent as may be necessary for the proper medical and surgical treatment of poor persons" (3).

1. Rep. H.M. Commissioners, (P.P. 1844, XX), p.xiii.
2. 3rd Rep. Board Super.... (P.P. 1849, XXV), p.6.
3. *ibid.* Rule I, p.18.

District medical officers were responsible, therefore, for the medical care of the local sick poor and for providing them with medicines. Parishes provided their medical officers with lists of all aged and infirm who were in permanent receipt of parochial relief and these people were entitled to free medical care on production of a ticket provided by the parochial board ⁽¹⁾. The medical officers also had to attend, on the written or printed orders of the parochial board or inspector of the poor, any of the sick poor who required medical attention ⁽²⁾.

In 1850 City parish was divided into 12 districts and a part-time district surgeon (who was required to have his place of business within 100 yards of his district) was appointed in each. ⁽³⁾ The position of district surgeon (or medical officer) was regarded as highly desirable as it provided a small but regular and dependable salary which could be augmented by private practice; there was, therefore, considerable competition for these posts ⁽⁴⁾. Before 1850 the annual salary of each medical officer had been 25 guineas but in that year it was raised to £45 p.a. and to £55 p.a. in 1854 ⁽⁵⁾. Salaries remained at this level until the 1890's when they were raised by £10 a year ⁽⁶⁾. Barony parish paid their medical officers £55 p.a. in the 1860's ⁽⁷⁾ and £75 p.a. in the 1890's; at this time the parish of Govan was paying £110 p.a. ⁽⁸⁾.

1. 3rd Rep. Board Super., Rule X, p.19.
2. *ibid.* Rule XI, "or by the production, on the part of the poor person, of the ticket referred to in Rule X."
3. G.C.A. D HEW 1 5 1, p.154.
4. Hawthorne, *op.cit.* p.2. William McEwan the surgeon spent some years as district M.O. in the City parish before his appointment to the staff of the Royal Infirmary.
5. G.C.A. D HEW 1 5 2, p.249.
6. G.C.A. D HEW 1 5 4, p.347.
7. Report from the Select Committee on the Poor Law (Scotland), (P.P. 1868-9, XI). Q.3751.
8. G.C.A. D HEW 1 5 4, p.339.

The duties of the medical officers of City parish are clearly defined in the contract they had to sign on their appointment (1).

The medicines they prescribed were dispensed from parochial dispensaries or in the districts that were distant from the dispensaries by local apothecaries. According to the inspector of Barony parish the medical officer had complete freedom to order whatever medicine he wished for his patients, "He gives the recipe to the applicant, and he presents it to the dispensary and gets what he wants" (2). He could also order food when required, "He gives an order upon different shops in his district to supply the materials, and these orders come back to us and are paid" (3). But Medical Relief was restricted to paupers and only in emergencies was it given to anyone not on the poor's roll or who lacked "lines" from the inspector (4). Poor Law outdoor medical relief was not intended for anybody who was not a pauper. A committee of the parochial board of City parish, commenting on Dr. Russell's Report Upon Uncertified Deaths, concluded that, "while every facility should be

given to paupers to obtain the Medical aid, provided for them by the Board", it was desirable "that parochial aid should be avoided as much as possible for all who although poor, are above the rank of paupers, being self-supporting except in the case of personal or domestic sickness" (5).

Poor Law outdoor medical relief probably had only a limited effect on Glasgow mortality in the latter part of the nineteenth century,

1. See Appendix VIII and below iv. re vaccination and D.C.... (P.P. 1904, XXXIII), p.247 for Instructions to the medical officers of the Parish of Glasgow laid down in 1899.
2. D.C.... (P.P. 1904, XXXIII), Q.3755.
3. *ibid.* Q.3763.
4. *ibid.* Q.3758.
5. G.C.A. D HEW 1 5 3, pp.34-35.

therefore. First, it was available to only a small section of the population and, with the fall in population in the central districts of Glasgow due to slum clearance, the numbers of outdoor sick poor fell and medical districts were rearranged and amalgamated. Secondly, from the 1870's a considerable amount of work (especially that concerned with infectious disease cases) hitherto undertaken by the district M.O.'s was taken over by the staff of the Sanitary Department ⁽¹⁾. Thus the work of the district medical officers was declining at a time when mortality rates in the city were falling, suggesting that the fall in mortality was not a result of the efforts of these Poor Law medical officers.

1. G.C.A. D HEW 1 533, 5 Oct. 1874.

(iv) Smallpox and Vaccination

According to contemporary accounts and an investigation of the register of burials smallpox was a major cause of death in the late eighteenth century in Glasgow as elsewhere. In Edinburgh, according to the Registrar General, smallpox caused 14% of deaths between 1740 and '50, 9% of deaths between 1750 and '60, 11% of deaths between 1760 and '70, 12% of deaths from 1770-'80, 14% from 1780-'90, and 12% of deaths between 1790 and 1800 (1). It is possible, however, that these figures are under-estimates for Razzell has suggested that smallpox mortality was as much as twice as high as that recorded (2). In Edinburgh smallpox mortality fell in the early nineteenth century, according to the Registrar General (probably because of the introduction of vaccination). From 1800-10 only $3\frac{1}{2}\%$ of deaths were from smallpox "and the proportion sunk lower so long as the vaccination of the children born was nearly general" (3). Between 1810 and 1820 smallpox caused only 1.5% of deaths and 1.2% in the decade 1820-30.

"About that period the low Irish began to settle in great numbers in Edinburgh, and very generally neglected to have their children vaccinated. From that period the Smallpox deaths somewhat increased. Thus, from 1830 to 1840 the Smallpox deaths constituted 1.9% of the mortality in Edinburgh and from 1840 to 1850 the proportion had increased to 2%" (4).

The Registrar General suggests that "the disease exhibited the same mortality in other parts of the country" (5) and evidence from

1. 14th Ann. Rep. R.G. (for 1868), (P.P. 1871, XV), pp. xlv-xlvi.
2. Razzell, op.cit.
3. 14th Ann. Rep. R.G.... op.cit.
4. *ibid.*
5. *ibid.*

Glasgow does suggest a decline. Dr. R. Watt investigated the registers of death in Glasgow in 1813 and found that between 1783 and 1800 over 30% of the deaths of children under ten years in the city had been caused by smallpox ⁽¹⁾. And Cowan noted, "I am not aware that smallpox was so fatal in any town as it appears to have been in Glasgow" ⁽²⁾. By the first decade of the nineteenth century however, mortality from smallpox in the city had fallen and it accounted for only 11% of deaths of children under ten years between 1801 and 1812 ⁽³⁾.

Clearly, the major part of the battle against smallpox had been won by the middle of the nineteenth century, although it remained a continuing threat to public health. The further decline of smallpox between 1855 and 1911 was slight and does not account for more than a small part of the overall mortality decline in Glasgow in this period ⁽⁴⁾. There are two major measures that were introduced which may account for the decline in smallpox mortality that had already occurred by 1855, namely inoculation and vaccination.

The use of inoculation (or variolation) as a means of protecting an individual against smallpox had been introduced in Britain by Lady Mary Wortley Montague in the eighteenth century from Turkey and it was practised widely ⁽⁵⁾. The process involved inducing a mild attack of smallpox in a person by injecting him with live smallpox matter from vesicles from patients who had recovered from a mild attack of the disease. Inoculation gave immunity, though not permanent immunity, against smallpox infection but initially at least it had a considerable mortality ⁽⁶⁾. Razzell has concluded that the improved Suttonian

1. R. Watt, op.cit. p.6 & 47.
2. R. Cowan, Remarks suggested by the Glasgow Bills of Mortality (Glasgow, 1832).
3. Watt, op.cit.
4. See Table XVI.
5. Razzell, op.cit., and advocated by the Scottish doctor William Buchan in his influential book, W. Buchan, Domestic Medicine (12th Edition 1791), pp.227-40.
6. C.W. Dixon, Smallpox (1962), p.43.

method of inoculation (which was widely used in England) led to a reduction in smallpox mortality in the eighteenth century. He does suggest, however, that inoculation was less widespread and hence had less effect on smallpox mortality in large towns than in country districts ⁽¹⁾. He refutes the contention that inoculation actually spread smallpox ⁽²⁾ although a recent review of the history of the disease concludes that inoculation probably increased rather than decreased the incidence of smallpox ⁽³⁾. There is evidence from Glasgow to support this latter view; in 1832 Dr. Robert Cowan wrote on the matter, "The introduction of inoculation, although it diminished the relative mortality, will, it is believed, be found to have increased the absolute mortality of smallpox; as by this practice the disease, which, before its introduction, occurred epidemically only at long and uncertain intervals, was kept constantly prevailing at all times and seasons, and thereby produced a mortality, especially among children, which could now be scarcely credited, but for the attested registers of its ravages. The fact is undoubted, that smallpox inoculation did not effect that saving of human life so generally attributed to it. While it was adopted by the upper and intelligent classes of the community, it was rejected by the lower; and the bills of mortality prove the deaths from smallpox to have increased, after the practice of smallpox inoculation was introduced. In this city small-pox inoculation was generally practised,

1. Razzell, op.cit.
2. P.E. Razzell, "An interpretation of the modern rise of population in Europe - a critique", Population Studies, 28 (1974), 10.
3. Howard Jones, cited by T. McKeown (1976), op.cit. p.107.

and recommended by medical practitioners during the period"
(1783-1802) (1).

In the absence of accurate data on population and on the number of deaths from smallpox in Glasgow it is impossible to say whether the smallpox mortality rate really did increase when inoculation was widely practised in the eighteenth century. It is nevertheless the case that inoculation was prohibited in Scotland in 1848 by the Vaccination (Scotland) Act of that year, presumably because of the danger of infection.

The decline of mortality from smallpox occurred after 1800 probably with the introduction of vaccination (2), a much safer and more effective process that Edward Jenner had developed in the late eighteenth century which involved the inoculation of lymph from cowpox lesions on the udder of a cow into the skin of the arm. Lymph removed from the resulting vesicles was used for further human vaccination (3). In 1813 Dr. Watt wrote of his impression of vaccination; "From every

circumstance which had come under my observation, the efficacy of vaccine inoculation (4) appeared certain.

The experience of thirteen years pretty extensive practice had confirmed me fully in this opinion" (5).

By the 1830's vaccination was widely available in Glasgow and was provided without charge by several of the city's medical associations. In 1801 the Faculty of Physicians of Glasgow offered free vaccination to all comers at their hall in St. Enoch's Square each Monday and by 1831 had vaccinated over 30,000 people. In 1813 a group of doctors opened the Cowpox Inoculation Institution at which some 7,000 people were vaccinated in the years to 1831. In 1828 a group called the Faculty of

1. Cowan (1832), op.cit. p.4; Ferguson (1948), op.cit. p.111, refers to inoculation being practised in Scottish towns, often with a mortality of 1.5%.
2. See Table XVI b,
3. Dixon, op.cit. p.118.
4. i.e. vaccination. The word vaccine derives from the latin vacca - a cow.
5. Watt, op.cit. p.7.

Medicine began to offer gratuitous vaccination as well. By 1831 some 39,000 people had been vaccinated in Glasgow free of charge (1). It was difficult, however, to achieve a high level of vaccination among the poorer sections of the population and it is possible that fewer were vaccinated in the 1830's than hitherto. As Dr. Cowan noted in 1832, "In our city, the practice of vaccination is not so common now among the poor as it once was, and I fear that if the list of infantile diseases were still published in the mortality bills, many deaths from smallpox would annually be found" (2).

Nevertheless, Cleland wrote in 1831 that "cheap gratuitous Vaccination is now performed to a great extent by the Junior Members of the Profession in this City, and the villages in the neighbourhood" (3), showing the considerable extent of vaccination.

It seems evident, therefore, that vaccination was fairly widely practised in Glasgow by the middle of the century and this accounts for the reported fall in smallpox mortality that had occurred by this time. Nevertheless, infant vaccination was far from universal, as evidenced by the recurrent epidemics of smallpox that broke out. This was despite the efforts of the Poor Law authorities to encourage the practice. Under rules issued by the Board of Supervision for the Relief of the Poor a condition for participation of parishes in the Parliamentary Grant in aid of Medical Relief was that "... each parochial medical officer shall be bound to be at all times furnished with vaccine virus, and to vaccinate, without demanding

1. J. Cleland (1831), op.cit.
2. Cowan (1832), op.cit. p.6. In 1828 a district surgeon in City parish noted that smallpox had prevailed for several years and that "There exists at present among the poorer classes, an increasing carelessness and aversion to vaccination, from a belief that it does not afford adequate protection against the varioloid disease" A. MacFarlane, op.cit. p.105.
3. Cleland (1831), op.cit.

a fee or other remuneration than his salary from the parish all persons who come or may be brought to him for that purpose" (1).

All the Glasgow parishes (Barony, City (Glasgow), Gorbals, and Govan) qualified for the Parliamentary Grant and provided parochial vaccinators (2). The printed Duties of the District Surgeons which each district medical officer signed on appointment included instructions that he should always be supplied with vaccine virus and should vaccinate all who were brought to him (3). There are no data available as to the number of vaccinations carried out under these arrangements but it is unlikely that it involved a large proportion of the population. The Board of Supervision's Eighteenth Annual Report refers to the attendance of parish vaccinators being "irregular and precarious" in many places (4) and gives figures for 1861 and 1862 showing that in these years only 2,500 and 1,896 vaccinations were performed by parish vaccinators in the County of Lanark (5). It concludes "it is obvious that the proportion of children who remained unvaccinated must have been large . . ." (6).

Outbreaks of smallpox continued to occur in the 1850's and it became increasingly obvious that legislation was required to ensure that all children were vaccinated in infancy in order to reduce the number of people who were susceptible to infection. In Scotland the demands for compulsory infant vaccination grew, particularly in the cities of Glasgow and Edinburgh. In 1857 the disease was so prevalent in Glasgow and smallpox mortality so high that the managers of the Royal Infirmary resolved to take action to stem the epidemic, "Notwithstanding the

1. 3rd Ann. Rep. Board Super.... (P.P. 1849) xxv), p.6.
2. G.C.A. D HEW 1 5 1, p.198, 5 Aug. 1850, in 1850 the Board of Supervision approved the vaccinating arrangements in City parish, for example.
3. This regulation was superseded by regulations issued by the Board of Supervision under the 1863 Vaccination Act.
4. 18th Ann. Rep. Board Super.... (P.P. 1864, xxv), p.x.
5. *ibid.*
6. *ibid.* p.xi.

comparative failure of the gratis vaccination establishments already in the city, to which the Medical profession has so long directed the attention of the public", free vaccination should be provided in the infirmary dispensary and placards announcing this were displayed throughout the city. In October 1857 the Infirmary dispensary began to offer vaccination but it was found that there was a widespread prejudice against it among the "ignorant and uneducated classes" (1). As a result the Infirmary managers sent a Memorial to the Lord Advocate, "representing

to him the necessity which exists for making vaccination compulsory in Law, as in England, and they have solicited the co-operation of the Members for the City in urging the attention of his Lordship and of Parliament to this important sanatory (sic) movement" (2).

There was, however, no immediate legislative action. Vaccination at the Infirmary dispensary continued and by the end of 1858 1,063 adults and children had been treated (3).

The demand for compulsory vaccination grew and the matter was considered at a meeting of an ad hoc Committee on Vaccination that was called by the directors of the Royal Infirmary (4), attended by them, the Inspectors and chairmen of Gorbals, City, and Barony parishes, and representatives of the Town Council. The Vaccination Act of 1853 which had made infant vaccination compulsory in England was discussed and the general opinion of the meeting (5) was that compulsory vaccination should be introduced in Scotland. A sub-committee consisting of the Poor Law inspectors and Drs. Pagan and McGhie (medical superintendent of the

1. 63rd Ann. Rep. Royal (1857).
2. 63rd Ann. Rep. Royal (1857), p.5.
3. 64th Ann. Rep. Royal (1858), p.4.
4. G.C.A. D HEW 2 5 2, p.316.
5. With the exception of the representatives of City parish.

Royal Infirmary) was set up to consider smallpox and vaccination and Dr. McGhie was delegated to draw up a report on the subject. This report refers to the frequent and recurrent epidemics of smallpox in Glasgow and other Scottish cities and states that vaccination, when properly done, "affords so great an amount of protection and security from the ravages of this disease that its universal adoption would tend greatly to diminish the mortality and other evils which follow in its train". Despite the facilities provided for free vaccination by the Poor Law authorities, the Infirmary, and the Faculty of Physicians and Surgeons, "its universal adoption is retarded by so many causes, and opposed by so much prejudice and apathy on the part of the ignorant and uneducated" that nothing short of compulsory vaccination would suffice. Vaccination was already compulsory in England, Ireland, and on the Continent and as a result smallpox had declined; moreover Simon had shown that vaccination was safe. The sub-committee argued that though data on the prevalence of smallpox was deficient, "the evidence they afford, tends to show that the disease is more prevalent than it was in the earlier part of the century" (1). There was an annual influx of Irishmen and Highlanders into Glasgow who were unvaccinated and it was "chiefly among this class of the population that Smallpox prevails". They suggested that smallpox was most prevalent "where Vaccination is least attended to, and that the fatality of the disease is in proportion to the neglect of Vaccination". The sub-committee concluded that compulsory vaccination should be introduced in Scotland (2). Not only in Glasgow was concern expressed about the prevalence of smallpox and

1. This view was probably mistaken; smallpox occurs only sporadically and at a time of epidemic it would be easy to assume that the disease was actually getting more prevalent.

2. G.C.A. D HEW 2 17 (1) Reports, Petitions etc. of Barony Parish.

the need for compulsory vaccination. In 1863 the Edinburgh Town Council, concerned at the extent of the disease in the city, called a meeting of representatives of the College of Physicians and the three parochial boards of the city which asked the Town Clerk and the Medical Officer to prepare a memorandum on the matter to be sent to the Lord Advocate ⁽¹⁾. In that year (1863) a Vaccination Bill was finally introduced in Parliament.

The Scottish Vaccination Act of 1863 ⁽²⁾ laid down that within two months of the passing of the Act the parochial board of each parish in Scotland should appoint a registered medical practitioner as vaccinator who would operate under rules and regulations issued by the Board of Supervision. The Act was administered jointly by the Board of Supervision and the Registrar General. It imposed a duty on the parents and guardians of any child to have that child vaccinated within six months of birth (sick or immune infants were exempt). A blank certificate of vaccination was issued by the registrar when the birth was registered and the parent was told that he must return it, completed by a medical practitioner, within six months. If the certificate was not returned the registrar sent a reminder note, and if this was ignored the defaulter was reported to the parochial board of the district which issued an order to its medical officer to vaccinate the child. If any obstruction was offered to the vaccinator, the parents would then be dealt with under criminal law ⁽³⁾. A later decision by the Court of Session of Scotland held that repeated prosecutions of vaccination defaulters were permitted whilst a child remained unvaccinated ⁽⁴⁾ and such prosecutions were not uncommon.

1. Select Committee on the Vaccination Act (P.P. 1871 XIII), Q.4367.
2. 26 & 27 Vict. c.108.
3. Final Report of the Royal Commission on Vaccination (P.P. 1896, XLVII), s.123.
4. *ibid.*

The Scottish Vaccination Act did not provide free vaccination in general; it only provided free vaccination for paupers. Non-paupers either had to pay a doctor to vaccinate their children or attend a dispensary. Under section 57 of the Public Health (Scotland) Act, 1867, however, the Local Authority had the power to defray the cost of vaccinating non-paupers or persons ordered to be vaccinated (in terms of the 18th section of the Vaccination Act) as might seem expedient ⁽¹⁾. Indeed in Glasgow from 1863 the district medical officers of the Sanitary Department were instructed to offer vaccination or revaccination, where required, to all those living in the vicinity of a smallpox infected house ⁽²⁾. Standing instructions to the epidemic inspectors in the Sanitary Department were to encourage vaccination or revaccination among the unvaccinated or poorly vaccinated ⁽³⁾. But it was often difficult to persuade people to agree to vaccination. The poor were fatalistic and procrastinated, "It'll be time enough when smallpox comes into the street" a junior medical officer was told in the epidemic of 1901 ⁽⁴⁾. Clearly it would be more effective if smallpox contacts were vaccinated on the spot. In the smallpox outbreak of 1873 Dr. J.B. Russell (who had succeeded Dr. W.T. Gairdner as medical officer of health in the previous year) found that the existing system was not ensuring general acceptance of vaccination and so he had all the epidemic inspectors taught how to revaccinate by Dr. Neil Carmichael who ran the Vaccination Station in the Central Chambers. Thereafter Carmichael kept the inspectors supplied with vaccine lymph and continued to do all the primary vaccinations himself ⁽⁵⁾.

1. Final Rep. R.C. Vaccinat.... s.124.
2. G.C.A. DTC 14 2 38, Annual Report on the Health of the City for 1871, p.8.
3. City of Glasgow Sanitary Department (1870), op.cit. p.20.
4. A. MacGregor, Public Health in Glasgow 1905-46 (1967), p.3.
5. Final Report R.C. on Vaccination, Appendix VI (P.P. 1896 XLVII), p.10.

Now when the smallpox broke out in a close, court, or lodging house the epidemic inspectors were sent in pairs to vaccinate the local inhabitants and where necessary a junior medical officer would be appointed to superintend the work (1).

In the smallpox outbreak of 1870-1, when Dr. Gairdner was still medical officer of health, he had met with the chairmen and inspectors of the parochial boards of the city and the convenor of the Health Committee to discuss arrangements for vaccination and to prepare a handbill on the subject (2). In a memorandum he sent to the chairmen of the parochial boards after the meeting he recommended that during the epidemic the parochial boards should appoint all their district medical officers as Public Vaccinators under the Vaccination (Scotland) Act, who would be authorized to vaccinate all infants and to vaccinate or re-vaccinate all the adults living in a smallpox infected area (3). (An indication that some children still escaped the vaccination programme was that 62 of the 205 smallpox deaths in Glasgow in 1871 were of children under five years.) Barony parish agreed to this but City and Gorbals parishes declined on the grounds that poor-rates could only legally be spent on vaccinating paupers, children of paupers, and defaulters under the Vaccination Act, a view the Board of Supervision shared. In the face of this lack of cooperation from the Poor Law authorities the health committee decided to use section 57 of the Public Health Act which allowed the cost of vaccination to be met from the rates. Thereafter the city's M.O.H. supervised arrangements during outbreaks of smallpox, and in 1876 the Board of Supervision issued a Minute to all

1. Russell (1905), p.334.
2. G.C.A. El 20 1, Feb. 6 1871, p.174.
3. *ibid.* pp. 183-4.

Local Authorities concerning their duties under the Public Health Act in relation to outbreaks of smallpox ⁽¹⁾. On this occasion in 1871 the health committee took rooms in High Street, in Main Street, Gorbals, Saltmarket, and in Cowcaddens for use as vaccinating stations where parents could get their children vaccinated without charge, "and during the evening Men from the Public Works, Girls from the Mills and others might be vaccinated". Under the supervision of the medical officer, four advanced medical students (who were paid £1 11s 6d. per week) performed the vaccinations. In addition the medical students made house to house visits offering to vaccinate or re-vaccinate all comers. These measures were continued whilst the epidemic lasted. During the first two weeks the vaccination stations were open 2,015 people had their arms examined for evidence of previous vaccination and 310 were vaccinated. House to house vaccinating proved successful as many had no objections "to submit to the operation when it is brought without trouble or expense to them, to their very homes" ⁽²⁾. In the following fortnight a further 2,940 people were examined and 281 were vaccinated and an additional vaccinating station was opened at the Sailors' Home for the benefit of sailors in the port of Glasgow ⁽³⁾. By May, however, the number of cases of smallpox was falling and the outbreak faded out.

Contemporary opinion on the need for re-vaccination, which is now known to be essential to maintain immunity to smallpox ⁽⁴⁾, was equivocal. John Simon, the medical officer to the Privy Council, held that well done and successful vaccination in infancy meant "most people are completely insured, for their whole lifetime, against an attack of Smallpox;" and in

1. 32nd Ann. Rep. Board Super.... (P.P. 1877, XXXVIII), pp.14-15.

2. G.C.A. El 20 1, Feb. 1871, pp.183-93.

3. *ibid.* p.199.

4. Regular revaccination every three years is recommended to maintain immunity.

in the few cases where vaccinated people did contract smallpox the disease would be so mild "as not to threaten death or disfigurement"⁽¹⁾. As already noted, while Gairdner was M.O.H. revaccination appears to have been limited to those with poor vaccination marks. However, his successor Dr. Russell had found from his own experience at the Parliamentary Road hospital that smallpox could and did attack apparently well vaccinated people; of 104 patients in the hospital on April 23 1871, 56 had been vaccinated in infancy.⁽²⁾ He concluded that the immunity to smallpox provided by vaccination gradually diminished, although vaccination would continue to modify the severity of an attack of the disease. Generally, he suggested, revaccination of all over the age of ten years was required to ensure continued immunity from smallpox infection⁽³⁾. Others, however, continued to believe that revaccination was unnecessary; in 1877 Russell suggested that parochial medical officers should encourage paupers to be revaccinated but Dr. Walker (the vaccinator in City parish) turned this suggestion down as he held revaccination to be unnecessary as those properly vaccinated in infancy had lifelong immunity⁽⁴⁾.

Russell found that in general people would only agree to be re-vaccinated when confronted by the actual personal danger of a smallpox outbreak. He therefore adopted a policy of "ring" vaccination; re-vaccinated all the contacts of a smallpox case at home and at the place of work. He concentrated on revaccinating groups of individuals who were particularly at risk; those living in institutions, for example. In 1877 he contacted the inspectors of the poor and the medical officers of the poorhouse and hospitals urging them to revaccinate inmates⁽⁵⁾. He also

1. 26th Ann. Rep. Board Super.... (P.P. 1872, XXIX), pp.49-50.
2. J.B. Russell "On revaccination", Glasgow Medical Journal III (1871), 391.
3. *ibid.* In 1871 the Faculty of Physicians and Surgeons of Glasgow recommended "to adults who have not been vaccinated a second time, to avail themselves of the additional security of re-vaccination".
Glasgow Weekly Herald, Feb. 11 1871.
4. G.C.A D HEW 1 5 3, p.68.
5. G.C.A. E1 20 (3), p.161.

revaccinated those who were particularly likely to spread infection; those vagrants who lived in common lodging-houses and men like short-term prisoners who frequented lodging-houses on their release from prison. An example of the danger of itinerants as carriers of smallpox is provided by the case of a man who was removed from a Corporation lodging-house with smallpox in August 1897. He had come to Glasgow from North Berwick by way of Edinburgh. Since arriving in Glasgow in mid-July he had been in lodging houses in Kilsyth, Falkirk, Govan, and Glasgow; the man sickened in Kilsyth and had been infectious ever since ⁽¹⁾. Lodging-houses were obvious places where a highly infectious disease like smallpox would spread and the public health authorities had to pay them particular attention. In 1877 as an experiment the vaccinator Dr. Carmichael and an epidemic inspector had visited a lodging house one night where they inspected the arms of the inmates and found that a large number had no marks indicating previous vaccination; but only two men agreed to be vaccinated ⁽²⁾. A visit to a woman's lodging house a few weeks later was rather more successful ⁽³⁾. It was evident, however, that some inducement was required in these circumstances to encourage vaccination. When in the smallpox outbreak of 1883-4 it was found that a model lodging-house was a centre of infection and that difficulty was being encountered in persuading lodgers to be revaccinated, it was decided that a week's free lodging should be offered to those who agreed to be vaccinated. Within three nights 146 of the 225 lodgers had been revaccinated ⁽⁴⁾. Again in 1893 a week's free lodging was given to lodgers in City Improvement Trust Lodging houses who agreed to be revaccinated ⁽⁵⁾ and it was soon reported that 52% of men in Corporation (Improvement Trust)

1. G.C.A. E1 6A (24), p.901.
2. G.C.A. E1 20 (3), p.170.
3. *ibid.* p.207.
4. G.C.A. E1 6A (10), p.2151.
5. G.C.A. E1 6A (20), p.242.

lodging houses had been revaccinated. On this occasion it was also agreed that lodgers in Corporation model lodging houses who were certified by the M.O.H. as unable to work because of the effects of revaccination (sore arms etc.) should be given free board and lodging during their illness ⁽¹⁾. Moreover the proprietor of several large private lodging houses in the city was paid 2s 4d. a week for the lodging of each of the inmates who was revaccinated and, at his own expense, he gave free board and lodging to those lodgers who were unable to work because of the side effects of vaccination.

These methods of persuading lodgers to be revaccinated were used again in the outbreak in 1893 and in the epidemic of 1900-2 when several lodging houses were centres of infection.

Dr. Russell regarded petty criminals as another group "who will not think or act for themselves" and he arranged that the prison medical officers, with the consent of the Prison Commissioners, should start the systematic revaccination of prisoners ⁽²⁾. By the end of 1893, 8,544 prisoners had been revaccinated, a further 8,157 were vaccinated in 1894, 1,575 in 1895, but only 208 in 1896, when the prevailing outbreak was waning. In 1897 when smallpox again began to increase revaccination in the prisons was resumed. Prisoners were not given much choice in the matter of vaccination; early in 1898 a released prisoner took legal action in the Dumbarton Sheriff Court against the Duke Street Prison Medical Officer for vaccinating him without "warrant or authority" ⁽³⁾, as a result of which he had been unable to work. The case was eventually dismissed ⁽⁴⁾ but meanwhile the vaccinating of prisoners had ceased. It was resumed, nevertheless, during the smallpox outbreak of 1900 ⁽⁵⁾.

1. G.C.A. E1 6A

2. (20). p.210. McGregor, op.cit. p.4, writing of the early 1900's, tells of navvies in lodging houses refusing vaccination because they feared a sore arm and a resulting loss of work.

3. ibid. p.242.

4. G.C.A. E1 6A (25), p.378.

5. G.C.A. E1 6A (26), p.319.

6. Minutes Glasgow Police Department, 1900-1, p.51.

Another body of itinerants which the Glasgow public health authorities regarded as potential smallpox carriers were the navvies, who were constantly on the move from job to job. In November 1903 the M.O.H. was informed by the engineer at the Tweedsmuir Water Works near Broughton that there was smallpox among the navvies and that some forty of them had already left the site. Shortly afterwards it was reported that three of these men had appeared in Glasgow at a lodging house but had left when told that revaccination was a condition of admission. The authority's lack of control over such people led the M.O.H. to suggest that there should be some sort of statutory provision to regulate the movements of these infectious wanderers ⁽¹⁾. There is no evidence that this suggestion was taken up.

The main object of vaccination policy, however, was infant vaccination and it was the parochial boards, not the public health authorities, which were charged by the law to administer the policy of compulsory vaccination of all infants. In City parish from 1857, even before the Vaccination Act, the parochial medical officers had an hour appointed each week when they did free vaccinations ⁽²⁾. With the passing of the Vaccination Act in 1863 one of the parochial medical officers, Dr. Walker, was appointed parochial vaccinator and paid (in terms of the Act) 1s 6d. for each case that he vaccinated within two miles of his residence and 2s 6d. for each case vaccinated which lived beyond that ⁽³⁾. This work was extended in 1867 when at his own suggestion Dr. Walker began attending the two parish dispensaries at a fixed time each week to vaccinate any child born in City parish who was brought to him ⁽⁴⁾; in addition he vaccinated the defaulters whose names were supplied to him by the

1. Minutes Glasgow Police Department, 1903-4, p.192.
2. G.C.A. D HEW 1 5 (2), p.1.
3. *ibid*, p.58.
4. *ibid*. pp.146-7.

registrars. The parochial board doubted whether it was legally empowered to vaccinate non-paupers ⁽¹⁾ but the practice was continued as many of the children came from very poor families ⁽²⁾. Indeed the registrars were given notes to issue to parents registering births with details of the Board's vaccinating stations ⁽³⁾. An official was appointed by the parochial board whose sole duty was to keep the vaccination record, serve Notices on those who failed to return completed vaccination certificates, and to hunt out defaulters ⁽⁴⁾. He was not, however, very successful in this respect. Accordingly the public health authorities were forced to intervene. The Registrar General had noted in 1875 that there were weaknesses in Scottish vaccination legislation and that

"The number of postponements might, we think, be greatly diminished and the number of those who escape vaccination might be proportionally reduced ... by an enactment reducing the statutory period during which vaccination may be postponed from six to four months".

He went on to note that in Scotland the great obstacle in the path of vaccination was "the habit of procrastination existing among the lower classes of society" which led many parents to postpone going to the vaccinator until they received a reminder from the registrar. These reminders were not issued until some six months after registration of the child's birth and "during the fifth and sixth months of life a number of infantile diseases are apt to show themselves", which led to a further postponement ⁽⁵⁾. In Glasgow Dr. Russell had become aware

1. G:C.A.:D. HEW 1 5 (2), p.165.

2. *ibid.* pp.168-9.

3. *ibid.* p.176. The registrars were, however, reluctant to do anything that might interfere with private medical practice and therefore only issued these notices to those who appeared to be too poor to pay for private vaccination.

4. *ibid.* p.247.

5. 20th Annual Report of the Registrar General, for 1874 (P.P. 1875) XIX), p.29.

of the inadequacy of the arrangements for ensuring the vaccination of infants. The compulsory vaccination procedure run by the registrars and the parochial boards involved a system of written Notices which were served on defaulting parents but, as Russell pointed out, the difficulty lay in locating the defaulters. This was a particularly serious problem in a large industrial city like Glasgow. Between 1874-77 3.12% of Glasgow infants were not vaccinated according to the Registrar General, compared with only 1.88% of births in the rest of Scotland. In order to trace more of the defaulters Russell arranged with the registrar of City parish in 1876 to have lists of defaulters given to the Sanitary Department and the staff managed to trace some 26% of these. Most of the defaulters had in fact had their infants vaccinated but failed to get the certificate of vaccination completed and returned to the registrar. A mother who had had her child vaccinated either by her own doctor or at a vaccinating station, could see for herself whether the vaccination was successful and she might therefore not bother to take the child back for examination ⁽¹⁾. If the vaccination had been performed by a private medical practitioner the mother might not return to avoid paying the fee ⁽²⁾.

The arrangement with the City parish registrar was extended to all the Glasgow parishes in 1881. The registrars entered in a special book the names and addresses of those infants still unvaccinated a fortnight after the issue of the notice provided by the 17th section of the Vaccination Act and these were distributed to the sanitary inspectors of the various city districts. In the course of their duties the inspectors

1. The vaccination certificate was only supposed to be completed by the doctor when he "read" the vaccination reaction to see if it had "taken".
2. G.C.A. El 6A (5), Report of the result of inquiries after defaulters under the Vaccination (Scotland) Act, 1863, 30 June 1879, pp.189-92.

would trace the defaulters who were almost all, according to Russell, of the class of the population "who require special care and guidance in sanitary as in all social relationships ..." (1). This plan was successful; the number of infants not accounted for as having been vaccinated, having died before vaccination could take place, or been exempted from vaccination on medical grounds, fell from 3-4% of infants in 1876 to 2% in 1881 - the first whole year in which the defaulters were followed up by the sanitary department; i.e. of 19,076 births in Glasgow only 382 eluded the provisions of the Vaccination Act. In the meantime nationally the percentage of defaulters under the Act had actually increased from 1.62% in 1877 to 2.06% in 1881.

The sanitary department continued this practice of tracing vaccination defaulters. In 1885, for example, 3,810 visits were made by sanitary inspectors to trace defaulters, 694 were traced and registration of vaccination secured (vaccination had already been done), and 608 were persuaded to allow their infants to be vaccinated (2). There was, however, an obvious duplication of work by the parochial boards and the sanitary department. From 1881, therefore, (with Board of Supervision approval) the Inspector of City parish sent the parochial vaccinator the list of only those defaulters which his assistant had been able to trace and these were duly attended by the vaccinator (3); the remainder were left for the sanitary department to trace.

The parochial board's vaccination station in Ingram Street continued to function until 1885 when Dr. Walker resigned as vaccinator. It was then closed since the vaccination station of the Sanitary Department was nearby in Montrose Street. The parochial vaccinator had still

1. G.C.A. E1 20 (7), Memo by Medical Officer on defaulters under the Vaccination Act, 6 July 1883, pp.321-5.
2. G.C.A. DTC 14 1 8, Report of the operations of the Sanitary Department of the City of Glasgow for the 5 years ending 31 May 1887.
3. G.C.A. D HEW 1 5 (3), p.203.

been dealing with a considerable number of children, he vaccinated 700 in six months in 1878 and 581 between January and September 1885.

Thereafter, although the parochial boards continued to vaccinate paupers most free vaccination was done at the sanitary department's station in Montrose Street, or at the infirmary dispensaries and the Faculty Hall.

The details of vaccination in 1888 (Table LX) show the small part the three parochial boards were playing in providing infant vaccination in Glasgow, that most vaccination (some 85%) must have been done by private practitioners, and also the small number of infants who remained unvaccinated.

Table LX (1)

Percentage vaccinated, Glasgow 1886-90

Total births		Successfully vaccinated		Insusceptible of vaccination ⁽²⁾		Dead before vaccination		Removed from district before vaccinated etc.	
No.	%	No.	%	No.	%	No.	%	No.	%
97,274	100	83,245	85.5	994	1.0	9,984	10.2	2,458	2.5

Clearly vaccination had become a matter for the public health authorities rather than the Poor Law. In 1898 the Inspector of City parish forwarded a petition to A.J. Balfour, leader of the House of Commons asking that a bill should be introduced transferring the administration of the Vaccination Act in Scotland from parish councils to the local health authorities ⁽³⁾. Nothing was done, however, and prosecutions

1. Final Report R.C. Vaccinat.... Appendix VI (P.P. 1896, XLVII), p.9.
2. Infant vaccination in Glasgow in 1888

Total births	% infants vaccinated gratuitously by:-
19,255	
Sanitary Office)	
G.R.I.)	
W.I.G.)	
Faculty Hall)	14.2
Parochial Boards)	
City, Govan, and)	0.5
Barony.)	

2. Because insusceptible to vaccination or previously successfully vaccinated.
3. G.C.A. D HEW 1.2 (7), p.3. 2nd Aug. 1898.

against those defaulters who actually refused to allow their infants to be vaccinated continued to be made by the parochial authorities although so many other aspects of the administration of compulsory vaccination had been taken over by the local authority ⁽¹⁾. There was some modification of the law, however. In 1899 the Glasgow parochial council had decided that repeated prosecution over the same children should not be undertaken ⁽²⁾ and the Vaccination (Scotland) Act of 1907 ⁽³⁾ ensured that those with conscientious objections to vaccination were able to make a signed declaration to that effect and thus avoid prosecution for failing to comply with the law.

One result of having such a large proportion of the population vaccinated in infancy was that such people, if not revaccinated, could later contract smallpox and would then probably develop a mild form of the disease with few characteristic spots and no other symptoms but a mild fever and a general malaise. Such cases were infectious and particularly dangerous as they were difficult to diagnose and might pass as cases of chickenpox ⁽⁴⁾ or heat rash. These cases were often only traced back from the second generation of cases they had themselves infected. Russell reported in 1884 finding a family in which the parents and two vaccinated children had very mild smallpox while the two unvaccinated children developed severe smallpox and died. Within a short period, he added, "we have found a lamplighter on his beat, a carrier's carter at his horse's head, and an apprentice at his printing office, with the eruption out on them" ⁽⁵⁾. Such examples were common.

1. A typical case ended with a father who had refused to allow his child to be vaccinated being fined 2s.6d. with 10s.6d. costs, G.C.A. D HEW 1 2 (9), Parish of Glasgow Minutes, p.50, and refusal to pay the fine could result in imprisonment, G.C.A. D HEW 1 2 (11), p.232.
2. G.C.A. D HEW 1 2 (8), p.187.
3. 7 Edw. 7 c.49.
4. G.C.A. E1 6A (10) p.2326.
5. *ibid.* p.2242.

Another instance when smallpox might go unrecognised was the case of malignant confluent type of smallpox, which had such a rapid course that it could be easily misdiagnosed. This was particularly so when it was associated with childbirth ⁽¹⁾ when death tended to be attributed to puerperal complications. For example, a group of associated cases of smallpox which occurred in the Eastern District of Glasgow in 1895 was finally traced back to the wife of one of them who had died suddenly a fortnight previously and registered as having died from a complication of childbirth. However it later emerged that she had died of malignant haemorrhagic smallpox ⁽²⁾. In a later outbreak seven cases which occurred close together and at the same time were traced to the household of an eating house keeper whose wife had died after a short-lived acute illness a fortnight earlier. She had not been treated by a doctor but the M.O.H., Dr. Chalmers, thought from her history that haemorrhagic smallpox was the probable cause of death ⁽³⁾.

What is the relationship between inoculation and vaccination and the fall in mortality from smallpox from an apparently high level in late eighteenth century Glasgow ⁽⁴⁾ to relatively low levels in the middle of the nineteenth century (when vital registration was introduced providing the first reliable measure of smallpox mortality) and later? It seems unlikely that inoculation was responsible for this decline and it may indeed have led to an increased incidence of the disease ⁽⁵⁾. Mortality from smallpox probably fell with the introduction of vaccination at the beginning of the nineteenth century and by the time vital registration was introduced it was no longer a major cause of death in Glasgow.

1. Dixon, op.cit. p.17.

2. G.C.A. E1 6A (21), p.456.

3. G.C.A. E1 6A (27), 2 June 1900, p.864.

4. According to contemporary analysis based on the Bills of Mortality with all their known imperfections.

5. See above, p.294, and McKeown pp.107-8. There is no evidence that there was any change in the virulence of smallpox in this period.

The fall in mortality there ^{after} accounted for only a very small proportion of the overall mortality decline between 1855 and 1911. The introduction of compulsory vaccination in the 1860's did effect smallpox mortality. Compulsory infant vaccination, introduced when vaccination was far from universal particularly among the poor, ensured that virtually all infants were vaccinated but there was no statutory provision for regular revaccination (which is essential to maintain immunity). When epidemics of smallpox occurred, as they were bound to occur in a busy international port like Glasgow, the public health authorities had to revaccinate all contacts very rapidly in order to contain the outbreak. (Although, as already noted, efforts were made to keep particularly susceptible groups revaccinated.) Compulsory vaccination did ensure, however, that children, always a particularly vulnerable group, were protected from smallpox.

One obvious result of the mass vaccination of infants was the changing age pattern of smallpox victims ⁽¹⁾. In addition to limited outbreaks in the 1890's, there were three major smallpox epidemics in our period; in 1855-7 (before compulsory vaccination), in 1870-2 (six years after compulsory vaccination was introduced), and in 1900-2 (when infant vaccination was practically universal). In the first epidemic 89% of the 729 smallpox deaths occurred among children under ten years, in the second epidemic 38% of the 358 smallpox deaths occurred among the under 10's, and in the third major epidemic only 16% of the 238 smallpox deaths were among children under ten years ⁽²⁾. Infant

1. See Table XVI, and the table in s 173, Final Report R.C. on Vaccination, Appendix VI (P.P. 1896, XLVII) for similar pattern in the ages of smallpox victims in Scotland. Smallpox caused 3,175 deaths/1000,000 living among children aged under one year in the years 1855-63, 1,243 among children of 1-5 years and 244/1000,000 living among those aged 5-10 years. In the 24 years after the Vaccination Act (1864-87) smallpox caused 679 deaths/1000,000 living among children under one year, 139 among the 1-5's and 86 among children aged between 5-10 years.
2. Chalmers, op.cit. pp.352-3.

vaccination obviously provided effective immunity; in addition the number of deaths in the three successive epidemics declined. Older children and adults who had been vaccinated but whose protection was declining would tend, if infected, to develop a less severe and hence less fatal form of smallpox.

By the end of our period smallpox epidemics threatened only sporadically and when there was an outbreak the public health authorities were able to mount vigorous campaigns of revaccination. In the epidemic of 1900-2, a team of 484 vaccinators (medical students, police constables, gas and water inspectors, members of the ambulance corps. and others) revaccinated some 70% of the population of Glasgow ⁽¹⁾. By this time smallpox was no longer an important cause of death in Glasgow but rather an ever-present threat to public health.

1. Scotland had no national vaccine institute to provide a constant supply of pure lymph, although the Scottish Vaccine Institute in Edinburgh did supply the parochial medical officers, who performed only a small proportion of all vaccinations. In 1903 a deputation representing the medical faculty of Scotland saw Lord Balfour of Burleigh at the Scottish Office to press for a national vaccine institute for Scotland. The representatives from Glasgow pointed out that in the recent epidemic in the city there had been difficulty in getting sufficient vaccine lymph and that a standard form of lymph was required. Glasgow Herald, July 16 1903.

10. The Standard of Living: Housing and Diet

Housing

The growing industries of nineteenth century Glasgow attracted workers into the city from all over Scotland and, in the lean years in Ireland, thousands of destitute Irishmen swarmed into the city seeking work. With the growth of the industrial districts in the east end of the city, along the canals and the Clyde the old town around the Cross and the Cathedral fell into decline. As the city merchants moved to the suburbs of the west end and the south side, the old central areas of Glasgow became the refuge of the very poor who crowded into the old tenements and houses in their thousands. Contemporary observers, cited in the Report of the Sanitary Condition of the Labouring Population of Scotland, have left vivid descriptions of conditions in the "low districts" of the city, the "alleys leading out of the High Street, and lanes in the Calton, but particularly the closes and wynds which lie between the Trongate and Bridgegate, the Saltmarket and Maxwell Street" (1).

Dr. Cowan wrote, "The streets, or rather lanes and alleys, in which the poor live, are filthy beyond measure; excrementitious matter, and filth of every description is allowed to lie upon the lanes, or, if collected, it remains accumulating for months, until the landlord, whose property it is, is pleased to remove it. The houses are ruinous, ill constructed, and to an incredible extent destitute of furniture. In many there is not an article of bedding and the body clothes of the inmates are of the most revolting description. In fact in Glasgow, there are hundreds who never enjoy the luxury of

1. Rep. San. Com.... (P.P. 1842, XXVIII), p.71, J.C. Symonds, quoted by C. Baird.

the meanest kind of a bed and who, if they attempted to put off their clothes, would find it difficult to resume them" (1).

The superintendent of police, Captain Miller wrote of central Glasgow,

"In the very centre of the city there is an accumulated mass of squalid wretchedness, which is probably unequalled in any other town in the British dominions. In the interior part of the square, bounded on the east by Saltmarket, on the west by Stockwell Street, on the north by Trongate, and on the south by the river, and also in certain parts of the east side of High-street, including the Vennels, Havannah and Burnside, there is concentrated, everything that is wretched, loathsome, and pestilential. These places are filled by a population of many thousands of miserable creatures. The houses in which they live are unfit even for sties, and every apartment is filled with a promiscuous crowd of men, women and children, all in the most revolting state of filth and squalor. In many of the houses there is scarcely any ventilation: dunghills lie in the vicinity of the dwellings; and from the extremely defective sewerage, filth of every kind constantly accumulates ..." (2).

Charles Baird describes a typical scene; "We entered a dirty low passage like a house door, which led from the street through the first house to a square court immediately behind, which court, with the exception of a narrow path around it

1. Cowan, Rep. San. Comm.... (P.P.1842, XXVIII), p.72.

2. Smart, quoted by Baird, Rep.San.Com.... (P.P. 1842, XXVIII), pp.72-3.

leading to another long passage through a second house, was occupied entirely as a dung receptacle of the most disgusting kind. Beyond this court the second passage led to a second square court, occupied in the same way by its dunghill; and from this court there was yet a third passage leading to a third court, and a third dung-heap. There were no privies or drains there, and the dungheaps received all the filth which the swarm of wretched inhabitants could give; ... The interiors of these houses and their inmates corresponded with the exteriors" (1).

In the old central districts of the city the tenements and mansions of the Glasgow burghers were too large and expensive to be let to the working people who crowded into the district. They were therefore "made down", divided and sub-divided into small living units in order that the largest number of people possible could be crammed into the available space (2). As the sanitary investigators of the North British Daily Mail noted in 1869 it was in the old central districts of the city that were to be found "the chief remaining specimens of the olden style of house architecture, and tenements once the home of the elite have become transmuted by subdivision into a class of dwellings for a class of people very different in the social scale from its former occupants" (3).

At number 55 High Street, for example, there was "a fine old property, which must at one time have been amongst the best residences in Glasgow; it is now, however, subdivided into

1. Rep. San. Comm., op. cit., p.8-9.
2. For a discussion of this point see J.H. Dyos and D.A. Reeder, "Slums and suburbs", in H.J. Dyos and M. Wolff op.cit. p.361.
3. 5th Report Sanitary Commission, North British Daily Mail Nov. 26 1869.

small single apartment dwellings, its fine old rooms, with corniced ceilings, and floors closely planked like a ship's deck, ill accord with the tatterdermalion appearance of its more modern sub-divisions" (1).

Beyond the Molendinar Burn was the old Claybrae mansion house, "whose wide airy passages, broad stairs, and finely corniced ceilings tell of better days gone by. On the ground floor, which at one time must have been the cellar of the house, there is a low passage from which on either side there is a small pigstye of a place, not 6 feet broad by 10 feet long, lighted by a small square window in the corner. One of these places was open at the time, and there were three old Irishmen preparing a cup of tea for themselves ... In another sunk room in this tenement we found a woman living in company with a goodly collection of hens" (2).

It was conditions like these that prevailed in what had been the homes of the wealthy.

Not only were the old houses and tenements subdivided but their courts and gardens, as well as the back courts of more recently built property, were covered by "back-lands": buildings that were squeezed in to make use of all the land available even though this obstructed the lighting of and access to existing buildings. At Main Street, Gorbals, for example, there was a quaint looking one-storey building with attics in front and with a three-storey back-land building behind. All the

1. 11th Report Sanitary Commission, North British Daily Mail Dec. 23 1869.
2. 11th Report Sanitary Commission, North British Daily Mail Dec. 23 1869.

upstairs houses ⁽¹⁾ had to be approached by rickety wooden-railed staircases and bridges ⁽²⁾. Back-lands were built on back courts and odd plots of land throughout the working class areas of the city. In McAdam Lane between Garscube Road and North Woodside Road there was another example; "one of those back lands approached by a narrow close from the

lane, and occupying what should be the back yard of a high tenement of houses, from the rear of which it is only a few yard removed ... It contains two storeys, the upper houses of which open direct off a balcony running in front of them, and which is reached by an open stair at one end.

This low lying tenement is completely dwarfed by the high buildings which surround it, and the open middens and privies which pertain to it as well as the front land are stuck immediately besides the windows of the lower house, about a yard in front of them ... Some of the back rooms of the front land are below the level of this yard, and their windows actually face into the privies and middens, not above one yard removed from them" ⁽³⁾.

Even newly built tenements were squeezed into sites with total lack of regard for the lighting, ventilation, and sanitation of the tenants.

The North British Daily Mail's investigators wrote in 1869 of the Rockvale district where "Many tenements of three or four storeys are being erected in such a way as to cover every inch of ground belonging to the feu, with small and totally insufficient yards or spaces behind" ⁽⁴⁾. The tenements

1. In Scotland the term "house" is synonymous with "dwelling" and includes flats etc.
2. 9th Rep. San. Com. N.B.D.M. Dec. 16 1869.
3. 4th Rep. San. Com. N.B.D.M. Nov. 25 1869.
4. *ibid.* and see Best, *op.cit.* pp.404-6 for a discussion of the reasons why housing was crowded onto land in Scotland. He suggests that this was related to the feu system of land holding.

of one and two-apartment "houses" built for the working classes were jammed close together with the result that the density of population was extremely high. In Lyon Street which lay between North Woodside and Garscube Roads, for instance, there were two tenements, "They are about 71 feet long by about 48 feet broad, and between the two lands there is only a narrow space of ground for washing greens, &c. There is only one entrance staircase to each building, and on each landing there is a long passage running the full length from end to end of the tenement, dividing the whole longitudinally. In each passage of the front tenement there are twelve single roomed dwelling houses, six on each side of the passage, so that one-half of the dwellings look to Lyon Street and the other half to the back yards ... These tenements are four storeys high, so that we have 48 houses piled together, all thickly peopled, and with only one staircase for the whole ... The back tenement is if anything worse, none of the houses having a front aspect. Here there are only ten houses in each passage ... The entire accommodation for these two tenements consists of a small double privy, with an ashpit attached, which, having to serve so large a number of inhabitants, is always full to overflowing" (1).

On the opposite side of Lyon Street was another example of gross overcrowding. There there was a barrack-like row called Danskin's Land which consisted of six tenements built on 1,800 square yards of land.

1. 4th Rep. San. Com. N.B.D.M. Nov. 25 1869.

Each tenement contained 36 houses and it was estimated that, taking the average number of inhabitants per house as six, some 1,300 people were living in this small area (1).

The demand for housing was such that even houses of two rooms were often occupied by two families (2) and many families, even in the smallest houses, took in lodgers which greatly aggravated overcrowding. There was another practice which indicates the pressure on accommodation in the factory districts of the city. In Middleton Place in Garngad,

"In nearly all the manufactories in this neighbourhood there are night and day shifts of workmen ... (and) ... the beds have to serve a night and a day shift too ...; for as the day worker leaves his bed to take his place at the puddling forge, the night workman, as he leaves his work, all grimy and perspiring, turns in between the blankets which have just been vacated by his predecessor, so that many of the beds in Middleton Place are never allowed to grow cool ..."(3).

The same thing happened in Rose Street on the south side of the Clyde. Here, among the "men from Dixon's works, foundry labourers, a few miners, millworkers employed in the neighbourhood, who, as a rule, make good or fair wages" there existed "that, pernicious custom of night and day "shifts" alternately occupying the same bed ..." (4). It was not only factory and foundry workers who lived close to their places of work; dock workers had to live close to the river wharves in Anderston where,

1. 4th Rep. San. Comm. N.B.D.M.

2. *ibid.*

3. 2nd Rep. San. Com. N.B.D.M. Nov. 18 1869.

4. 9th Rep. San. Com. N.B.D.M. Dec. 16 1869.

"they crowd together in numbers far in excess of the capacity of the habitations, and in utter defiance of all sanitary laws; and in such streets as Clyde Street, Picadilly Street, Stobcross Street, Macalpine Street, Carrick Street, &c. overcrowding had for long been carried on to a very serious extent" (1).

Dock labourers were very poorly paid casual workers (who were paid by the hour (2)) and who had to live close to their places of work "for their employment is irregular, and they have frequent periods of enforced idleness;" (3).

The demand for housing in the central areas of Glasgow inevitably led to overcrowding. Such housing as there was was limited as land costs were high and the housing stock was constantly being reduced in the path of railway building and "improvements". In the 1860's the medical officer of health, Dr. Gairdner, noted that the impact of the demolitions of the Union Railway scheme and other city improvements had been to aggravate the ills of the poor (4). The Union Railway scheme, which included the construction of St. Enoch's and the College stations, involved considerable destruction of housing in the central districts of the Saltmarket, Bridgegate, and Gallowgate (5). The city authorities estimated that some 6,142 people would be made homeless by the demolition of 443 tenements for the construction of St. Enoch's station and 2,178 from the 141 houses demolished for the Caledonian Central station, but these figures are probably gross underestimates and a more likely figure of the number made

1. 22nd Rep. San. Com. N.B.D.M. Jan 25 1870.
2. Royal Commission on the Housing of the Working Classes (P.P. 1884-5, XXXI), evidence of Dr. J.B. Russell, Q.19, 625.
3. 22nd Rep. San. Com. N.B.D.M. Jan 25 1870, and see Dyos and Reeder, op.cit. on casual labourers being obliged to live in central areas close to their work.
4. W.T. Gairdner, Report on the Health of Glasgow for the first quarter of 1869.
5. Gordon, op.cit. p.450.

homeless by railway building in Glasgow is 20,000 ⁽¹⁾.

The other agency responsible for the destruction of housing in the central districts of the city was the City Improvement Trust which was set up by the City of Glasgow Improvement Act of 1866 ⁽²⁾. The Trust carried out extensive demolitions of slum property in an 88 acre area in the old centre of the city. Between 1870 and 1874 the homes of over 15,000 people were demolished ⁽³⁾, the worst slums in the central districts were swept away and new streets laid out. The Improvement Trust did not however rehouse much of the population it had displaced; it built only 1,697 houses under the terms of the 1866 Act and a further 257 under the Improvements and General Powers Act of 1897 ⁽⁴⁾, but those housed by the Trust tended to be skilled men in regular, relatively well paid employment, not the very poor who had lived in the old slums. They had to find homes where best they could by crowding into the cheapest housing in adjacent districts ⁽⁵⁾. It was some time before these demolished houses were replaced; much of the housing built in the building boom of the 1870's merely replaced recently demolished property rather than adding to the housing stock of the city ⁽⁶⁾. Demolitions by the Trust and the railways may have displaced some 100,000 people in the fifty years after 1866 ⁽⁷⁾, and it was only later in the period that the ratio of "houses" ⁽⁸⁾ to population began to fall (Table LXI). A large number of houses remained unoccupied, however.

1. Kellett (1969), op.cit. pp.325-6.
2. 29 Vict. c.85.
3. Bell & Paton, op.cit. p.224, and on the City Improvement Trust see C.M. Allan, "The genesis of British urban redevelopment with special reference to Glasgow", Economic History Review, 2nd ser. XVIII (1965), 598-613.
4. 60 and 62 Vict. c.215.
5. J. Butt, "Working-class Housing in Glasgow, 1851-1914", in S.D. Chapman, ed. The History of Working-Class Housing (Newton Abbot, 1971).
6. H.W. Bull, "Working-class housing in Glasgow, 1862-1902" (unpublished M. Litt. thesis, University of Strathclyde, 1973), pp.10-11.
7. *ibid.* p.13.
8. Using the Scottish definition of "house" of course.

Table LXI (1)

Population and housing in Glasgow, 1851-1911

Census year	Total houses			Total houses available for occupancy	Population	Population/inhabited houses
	Inhabited	Uninhabited	Building			
1851	63,153	1,547	1,032	64,700	329,097	5.21
1861	82,609	4,002	962	86,611	395,503	4.78
1871	100,876	2,134	1,025	103,010	477,732	4.73
1881*	106,238	12,264	377	118,502	511,415	4.81
1891**	134,339	6,491	768	140,830	565,839	4.21
1901	155,526	7,225	1,535	162,751	761,709	4.89
1911***	163,057	20,903	487	183,960	784,496	4.81

* Boundary changed by Municipal Extension Acts of 1872 and 1878.

** Extensive boundary changes in 1891.

*** Boundary changes in 1905.

That there was a decline in overcrowding is shown by the fact that the proportion of the population living in one room fell significantly (Table LXII).

Table LXII (2)

Percentage of the population of Glasgow living in houses of each size at six successive censuses

	1861	1871	1881	1891	1901 ⁽³⁾	1901 ⁽⁴⁾	1911
1 room	27.0%	30.4%	24.7%	18.0%	15.9%	14.0%	13.8%
2 rooms	40.7%	41.4%	44.7%	47.5%	49.9%	47.0%	48.4%
3 rooms	14.0%	13.2%	16.0%	19.7%	20.5%	20.5%	21.1%
4 rooms	7.4%	5.8%	6.1%	7.2%	6.9%	7.9%	7.1%
5 rooms and more	10.9%	9.1%	8.5%	7.6%	6.8%	10.5%	9.7%

A further measure of the decline in overcrowding is that the number of persons per room in Glasgow fell from 1881 onwards (Table LXIII).

1. Adapted from Butt, op.cit. p.60.

2. Source, censuses.

3. Area of city at 1891 census.

4. Area of city at 1901 census.

Table LXIII (1)

Persons per room in Glasgow

Year	Persons per room
1881	2.04
1891	2.03 (Old Glasgow) 1.23 (added districts) 1.86 (whole area)
1901	1.84
1911	1.32

In the 1860's the municipal authorities in Glasgow took active steps to control overcrowding. Section 387 of the 1862 Police Act empowered the Master of Works, at the direction of the Board of Police, to measure small houses of three apartments and under and to specify by means of a metal "ticket" nailed over the door the maximum number of people who could occupy the house. The minimum cubic space that was specified by the 1862 Act was 300 cubic feet for each adult and 150 cu.ft. for each child under eight years. This very minimal provision was raised to 400 cu.ft. per adult and 200 cu.ft. per child under ten years by the Glasgow Police (Amendment) Act of 1890 and was extended to apply to all houses that did not exceed 2,600 cu.ft. by the (Police) Order Confirmation Act, 1904. The measure was directed primarily at controlling overcrowding in the "made down" houses in the old districts of the city but was soon extended to cover other small houses (2).

At first regular inspections were carried out by policemen. This created difficulties because the night inspections were made each quarter with the result "that the overcrowders were always on the watch as the time for inspection came round, and the lodgers migrated elsewhere for a few days until the inspection was over, when they once more returned to their old quarters" (3).

1. Source, censuses of 1901 and 1911.
2. Russell (1905), op.cit. p.216.
3. 3rd Rep. San.-Com. N.B.D.M. 22 Nov. 1869.

Regular inspections were therefore discontinued and visits were made only when and where overcrowding was suspected. Some, however, continued to evade detection "for no sooner do the officers enter one or two houses in a tenement than the others are signalled to, and the inmates of the overcrowded houses steal out onto the stairs and passages like ants out of an ant hill before the police have time to go through half the tenement ..." (1).

By the 1870's special lodging house inspectors had been appointed and they carried out the night inspections. The work was done by two inspectors in each district on three nights each week. The chief inspector, acting on information from the medical officers, the lodging house and the epidemic inspectors, arranged for night visits to be made to "those localities where overcrowding is known, or presumed to prevail" (2). He informed the Superintendent of Police of the district in which the inspection was being made who sent an inspector or sergeant on the beat to accompany the sanitary officer; later the inspections were carried out by night inspectors of the sanitary department, who worked in pairs, visiting each ticketed house on average each $18\frac{1}{2}$ weeks (3). The visits to ticketed houses were made at night when the occupants were asleep and any overcrowding was obvious. The rights and wrongs of the system were debatable. People living in the east end of the city complained of being disturbed by the inspectors in the small hours of the morning (4). As McLeod, the chief sanitary inspector noted, "many murmurs have been

1. 3rd Rep. San. Comm. N.B.D.M.
2. Sanitary Dept. (1870), op.cit. p.21.
3. P. Fyfe, "Report as to Night Inspection", Sanitary Journal XI (1888), 56-7.
4. Glasgow Weekly Herald, 2 March 1872.

made at the annoyance of rousing people out of their beds at midnight. There is no denying that it is an unspeakable hardship to poor people who in no way infringe the law to be thus disturbed, but this arises frequently from the migratory character of the overcrowders, and their successors in the dwellings, consequently suffer. House to house inspection in suspected localities appear to be the only way that delinquents perpetrating this offence can be overtaken" (1).

Whatever its moral rights or wrongs, a very large number of houses were ticketed and regularly inspected as Table LXIV shows.

Table LXIV (2).

Annual average number of inspections of ticketed houses and crowding

Year	Houses inspected	No. over-crowded	% over-crowded	% overcrowding due to lodgers	Total ticketed houses
1872-6				71% (3)	
1880-4	39,365	1,560	3.9%	61% (4)	
1887	52,996	2,561	4.8%	-	23,288
1889	56,114	5,845	10.4%	-	23,000
1891-5 (5)	33,124	4,085	12.3%	-	-
1900-4	51,290	4,849	9.4%	33% (6)	20,000 (6)
1906-7 (7)	49,920	3,062	6.1%	-	20,644 (9)
1909-11 (7)	51,073	3,553	6.9%	(31% due to lodgers + (10% due to lodgers & family) (8)	20,220 (9)

1. McLeod, op.cit. p.6.
2. Sources, Annual Reports of the Operation of the Sanitary Department.
3. G.C.A. E1 6A 8, p.1636.
4. 1882-4.
5. By 1892 all ticketed houses had been re-ticketed under Section 28 of the Glasgow Police (Amendment) Act 1890 which raised the minimum cubic space to 400 cu.ft/adult and 200 cu.ft/child under 10.
6. 1901.
7. The provision of ticketing was extended to all houses not exceeding 2,600 cu.ft. by the (Police) Order Confirmation Act, 1904, Section 10.
8. 1910 and 1911 only.
9. 1909 and 1910 only.

Although the percentage of ticketed houses found to be overcrowded by night inspectors rose, particularly after the minimum standard of housing density was raised in 1890, it fell thereafter.

Nevertheless it is questionable whether night inspection did regulate overcrowding. Magistrates tended to admonish or fine offenders and prison sentences were never imposed. Cases were only taken to court if the crowding was 33% above the stated maximum ⁽¹⁾, and overcrowding by members of a family, rather than by lodgers, was treated leniently ⁽²⁾. Even when there was gross overcrowding magistrates were reluctant to impose fines; for example, one case of severe overcrowding (5 adults and 5 children and the householder in a house of 736 cu.ft.) was dismissed and this was not uncommon. Only small fines were imposed on cases of severe overcrowding brought to court after typhus had broken out in a tenement and the medical officer, Dr. Russell, took the opportunity to point out to the public and judiciary that "a more grim and remorseless Inspector is abroad in the city, and that he imposes his own punishment _ the only trouble is that it involves the innocent as well as the guilty" ⁽³⁾.

The basic problem was the shortage of cheap housing and ticketing did nothing to remedy this. In 1900 the then medical officer, Dr. Chalmers, reported that he had experimented by having ticketed houses inspected at monthly instead of three monthly intervals to see if more frequent inspections would relieve overcrowding in a particular district. He found, however, that virtually the same number of overcrowded houses were discovered on the second inspection as on the first. He concluded

1. Bull, op.cit. p.35.
2. ibid. p.39.
3. G.C.A. E1 6A 18, p.261 21 March 1891.

that night inspection "will have very little, if any practical effect in reducing the overcrowding in the City until there is an adequate supply of sanitary abodes of not greater rents than, say, 10s. to 11s. per month" (1). The scarcity of small, cheaply rented houses had been exacerbated by the closure of unfit houses under section 32 of the Glasgow Police (Amendment) Act, 1890 (2). The main obstacle to reducing overcrowding was the shortage of houses at rents that people were able and willing to pay. As Table LXI shows many houses remained unoccupied despite widespread overcrowding presumably because their rents were beyond the means of working people. In these circumstances it is unlikely that ticketing was very effective. Nevertheless a very large number of ticketed houses were inspected annually (Table LXIV) and the amount of overcrowding found did fall (3). Perhaps inspections acted as a deterrent to those who might have been tempted to crowd their houses still more.

There were other factors contributing to the problem of overcrowding. Much of it was caused by lodgers and the number of lodgers tended to depend on the local demand for labour. In 1880, for example, the lodging-house and night inspectors reported "an increase in the number of lodgers, as well as other indications of the commencement of that influx of new blood which is certain to accompany a revival of trade ..." (4).

The available data show that the proportion of overcrowding due to lodgers fell from over 70% of the total in the early 1870's to around a

1. Report of the M.O.H. of the City of Glasgow, 1900, pp.10-11. This view was confirmed by the chief sanitary inspector Peter Fyffe in evidence he gave to the Glasgow Municipal Commission on the Housing of the Poor ((1903, I) Minutes of Evidence, p.42). He pointed out that recently built working class housing was let at rents significantly above the rents paid for ticketed houses.
2. 53 & 55 Vict. c.221. Between 1890 and 1900 687 houses were closed.
3. See above, p. 328.
4. G.C.A. E1 20 5, p.1221.

third in the first decade of the twentieth century (Table LXIV). This decline can be attributed to factors other than ticketing. In 1882 Dr. Russell noted that in the large majority of cases crowding "depends upon the presence of lodgers ..." but that this was not so often the case in recent years than in more prosperous times and before the establishment of Model Lodging Houses in the city ⁽¹⁾. Between 1870-9 the City Improvement Trust had opened seven Model Lodging Houses ⁽²⁾ and subsequently other commercial Model Lodging Houses were built; by 1896 there were 79 of these commercial lodging houses with beds for 9,372 ⁽³⁾.

Although the ratio of population to houses fell only slightly by 1911 (Table LXI) there had been a significant fall in the proportion of the population living in one room (Table LXII) and of the number of persons per room (Table LXIII). Clearly, many new houses were often larger than those built hitherto with the result that crowding, though still gross, was declining. The downward trend in mortality in the city was probably related to this decline in overcrowding since there was a direct relationship between mortality and house size. Dr. Chalmers showed in 1903 that death rates were inversely related to house size ⁽⁴⁾. The relationship between certain diseases and house size will be considered later.

A major obstacle to improving housing conditions in Glasgow was the fact that the city authorities lacked statutory control over building standards. The investigators of the North British Daily Mail have described the structural conditions of houses in the back lands and hollow

1. G.C.A. E1 6A 8. Remarks upon night inspection for overcrowding during 11 years in Glasgow, p.1636.
2. Russell (1905), op.cit. p.248, and see Butt, op.cit. pp.64-8.
3. Bell & Paton, op.cit. p.192.
4. Glasgow Municipal Commission on the Housing of the Poor, op.cit., p.15.

squares and the results of "making down" old property. They also graphically describe the cellar dwellings of the city. In many there was scarcely ever any day light. Some homes in old tenements by the Molendinar Burn were merely holes in the earth, with such low roofs that a man was unable to stand erect, "but the great feature of these dwellings is what they call the wells. In every house there are two

or three holes scooped in the floor to a depth of four or six inches, in which the water is constantly oozing up from below the floor, being just a shade above the water level. The women scoop these holes in order to keep the rest of the surface from being quite so muddy as it might otherwise be ... Whenever the Molendinar rises of course these houses become flooded ..." (1).

Dampness was always a problem in cellar dwellings. In one house in Stobcross Street, "From a hollow in the earthen floor, close by the fire-place, the woman of the house assured us that she had one day during the bad weather, just before Christmas, taken two buckets of water ..." (2).

The Police Act of 1843 had given very limited powers to the Dean of Guild to enforce building lines, to prevent new buildings encroaching on streets and footpaths, and also power to demolish or order repairs to dangerous buildings; but this power was only used in cases of structurally unsound buildings. These powers were extended somewhat by the Police Acts of 1863 and 1866. The 1862 Act contained powers to regulate (by ticketing) the size and number of occupants of houses, it introduced regulations for lighting and ventilation, and prohibited the use of certain cellars for

1. 11th Rep. San. Com. N.B.D.M. 23 Dec. 1869.
2. 23rd Rep. San. Com. N.B.D.M. 28 Jan. 1870.

use as sleeping apartments. The powers were extended by the 1866 Act. But these regulations did not stop the building of back lands and hollow squares, neither did they prevent the "making down" and subdivision of houses. It was only with the Glasgow Building Regulations Act of 1892 ⁽¹⁾ later amended by an Act of 1900 ⁽²⁾, that effective control of building was obtained ⁽³⁾. The Act applied not only to new buildings but also, for the first time, to additions and alterations to old ones. Now the practice of subdivision and "making down" could be controlled ⁽⁴⁾. The Act laid down regulations governing the space between buildings; restricted the building of hollow squares and back lands, and laid down a minimum size for dwellings, and a minimum provision of the means of access to dwellings from common stairs. Thus it was only in 1892 that the Glasgow authorities finally acquired powers to regulate building standards in the city and thus were able to control all new buildings and the subdivision of old property.

1. 55 & 56 Vict. c.239.
2. Glasgow Building Regulations Act, 1900; 63 & 64 Vict. c.150.
3. Chalmers, op.cit. pp.25-30.
4. Bull, op.cit. pp.32-4.

Dietary Standards

McKeown, Brown and Record have argued that the major reason for population growth in England and Wales in the eighteenth and first half of the nineteenth centuries was the increase in food supplies that had resulted from advances in agriculture (1). They postulate that the slow growth of population before this time was due to limitations in the food supply. When this increased, the population increased commensurately. They point out that no other major changes can be detected at this time which would serve as an alternative explanation (2). Only later did factors such as general advances in the standard of living, improvements in hygiene, and specific sanitary measures reinforce the effect of improvements in food supplies (leading to better nutrition) in reducing mortality (3). More recently McKeown has gone on to suggest that better nutrition continued to be a significant factor in the decline of mortality in the second half of the nineteenth century (4). It is difficult to get statistical data to test this hypothesis as there are no reliable data on consumption of such basic articles of diet as bread and meat for the first half of the nineteenth century (5). In order to estimate meat consumption, for example, such indirect evidence as the number of sheep and cattle slaughtered at Smithfield have been used (6) and wheat production has been calculated from estimates of the amount of land under cultivation, wheat production per acre, and the amount of wheat imported and exported (7). There are statistics for less basic food stuffs such as tea, coffee, and sugar which were imported. Data on food

1. T. McKeown, R.G. Brown and R.G. Record, "An interpretation of the modern rise of population in Europe", Population Studies 26 (1972).
2. *ibid.*
3. *ibid.*
4. McKeown, *op.cit.* p.139.
5. P.E. Razzell, *op.cit.* p.8.
6. E. Hobsbawm, "The British standard of living 1790-1850", Economic History Review, 2nd ser. X (1957), 46-8, reprinted in Labouring Men (1974).
7. McKeown, Brown and Record, *op.cit.*

consumption in the second half of the nineteenth century are more reliable; the first British agricultural census was made in 1865 and national statistics of yield and production are available from 1884 ⁽¹⁾. Information about food consumption in Glasgow is equally difficult to find and national data may well be misleading as it is likely that Glasgow food prices differed significantly from their London equivalents ⁽²⁾.

After a period of decline in the early nineteenth century, national levels of real wages rose by an order of some 18% between 1815 and 1845 ⁽³⁾, by a further 55-60% in 1845-73 ⁽⁴⁾, and between 1873 and 1914 per capita real income increased by some 74%, rising most in the years 1873-96, the period of the so-called Great Depression - and more slowly thereafter ⁽⁵⁾. Per capita food consumption probably did not improve in the first fifteen years of the nineteenth century and rose little in the thirty years that followed ⁽⁶⁾. From 1845, however, there does appear to have been a marked improvement in food consumption as the prices of staples like bread fell ⁽⁷⁾. This improvement continued in the Great Depression as real wages increased and wheat prices began to fall dramatically as cheap grain began to be imported from the North American prairies. With rising real wages came a growing demand for such animal products as meat, milk, and cheese and as a result of this increased demand prices of these products fell less than the general decline in commodity prices that occurred from the 1870's ⁽⁸⁾.

1. McKèown, Brown & Record, op.cit.
2. T.R. Gourvish, "The cost of living in Glasgow in the early nineteenth century", Economic History Review, XXV, 1 (1972).
3. S. Pollard and D.W. Crossley, The Wealth of Britain 1085-1966 (1968), p.203.
4. *ibid.* p.215.
5. Pollard & Crossley, op.cit. p.234.
6. *ibid.* p.204 and see S.G. Checkland, The Rise of Industrial Society in England 1815-1885 (1964), pp.232-9.
7. Pollard & Crossley, op.cit. p.218.
8. S.B. Saul, The Myth of the Great Depression 1873-1896 (1969), p.14.

In the last twenty-five years of the nineteenth century there were indications throughout the country of an improvement in the general standard of working-class diets due to the falling prices of basic food stuffs. The quantity and variety of working-class food consumption increased as evidenced by the increase in consumption of meat, cheese, milk, and sugar ⁽¹⁾. Changes in the production, distribution, and marketing of food, both at home and overseas, led to increased consumption of such manufactured foods as biscuits, jam, and mineral waters and to the appearance of imported foods; exotic fruits like bananas became widely available for the first time and so did chilled and frozen meat from the Americas which could be sold at prices well below those of home produced meat. With the introduction of legislation to control the purity of food ⁽²⁾ it was possible at last to prevent the adulteration of food ⁽³⁾ and to control such practices as the dilution of milk ⁽⁴⁾ which had reduced the nutritional value of foods as well as defrauding customers. The sale of heavily adulterated food had always been worst in the cut-price shops of poor neighbourhoods ⁽⁵⁾ and it was the working-classes who suffered most from the practice and hence benefited most from improvements in food quality and purity.

The deterioration in the terms of trade in the early years of the new century was an important factor preventing a further increase in general standards of living in the years 1900-13 ⁽⁶⁾ and as a result there was probably no significant improvement in dietary standards of the working population in this period.

1. J. Burnett, Plenty and Want (1966), p.200.
2. Namely the Adulteration of Food, Drinks and Drugs Act of 1872, 35 & 36 Vict. c.74 and the Sale of Food and Drugs Act of 1875, 38 & 39 Vict. c.63.
3. Burnett, op.cit., p.260 ff.
4. *ibid.* p.118.
5. *ibid.* p.115.
6. Pollard & Crossley, op.cit. p.232.

It is uncertain how far improvements in diet extended among the working classes. At the end of the century, as investigators like Rowntree discovered, there was still widespread poverty and malnutrition among the poor and irregularly employed. A recent study of surveys of contemporary working class household budgets suggests that even regularly employed, unskilled workers and their families were inadequately fed at the end of the nineteenth century and only those of the level of skilled workers and above received adequate diets (1).

The underlying trends in real incomes and dietary standards in Glasgow were probably very similar to the national experience. From his analysis of the cost of living in the city Gourvish concludes that between 1810 and 1831 real wages of well paid workers increased by some 30% in Glasgow. In general, however, the ^{standard} of living improved only among the well paid and for the poorly paid and the hand loom weaver there was little improvement (2). There was probably little advance in the 1830's and '40's (3) but data given by John Strang the Glasgow City Chamberlain suggests an improvement in real wages by the late 1840's and early 1850's. The price of provisions, he noted, in 1851, had fallen considerably since 1819 (4). The fall in the prices of such necessities as bread, oatmeal, and beef had been 50%, 30%, and 20% respectively and that of such luxuries as sugar, tea, and tobacco some 20-30% (5). He concluded, "If the labour, given in money, of any of these artizans, be measured in bread, meal, tea, beef, or sugar, the advantage in favour of the workman in 1851 over the workman of 1819 is prodigious ..."(6). It

1. D.J. Oddy, "Working-class diets in late nineteenth century Britain", Economic History Review, 2nd ser. XXIII (1970).
2. Gourvish, op.cit.
3. Slaven, op.cit. p.158.
4. The year in which Dr. Cleland had constructed a table of food prices in the city.
5. J. Strang, Report on the Census of the City of Glasgow and Suburbs for 1851 (Glasgow, 1851), p.33.
6. ibid. p.34.

seems possible that much of this improvement was lost in the commercial crisis of 1856-7 and Slaven has recently concluded that though the conditions of life of skilled workmen in Glasgow had advanced by the 1850's those of the great mass of unskilled labour only really improved from the 1860's - only then did money wages outgrow the rise in the prices of rents and such basic foods as potatoes and beef ⁽¹⁾. From 1870 until the end of the century, however, there was a broad advance in real wages which was probably of much the same order in Glasgow as it was nationally ⁽²⁾. The improvement was halted at the turn of the century. The first decade of the new century saw a rapid rise in ^{but} prices and ^{but} wages and most of the workforce probably experienced a fall in living standards ⁽³⁾.

In Glasgow in the second half of the nineteenth century there is abundant direct evidence of widespread malnutrition among the working classes, particularly among the women and children. In 1861, the medical officers at the Western Public Dispensary had remarked that many of the children aged under two years who were brought to the dispensary suffered from the "irritation of Teething operating on constitutions debilitated for want of nourishment". Their mothers lived on what they described as "tea and a bit of bread" which might stave off hunger pangs but "cannot enable them to keep their health, or to supply proper nourishment to their infants" ⁽⁴⁾. In the 1870's and '80's the doctors at the Glasgow Medical Mission constantly referred in their reports to the malnutrition due to poverty and ignorance prevalent among their patients. In 1886, for instance, the medical officer reported "Dozens of children are

1. Slaven, op.cit. pp.157-8.

2. Slaven, op.cit. p.256.

3. *ibid.*

4. 8th Ann. Rep. West.... op.cit. p.6 and see above p.261.

brought every week suffering from rickets; and in a great many instances this unhealthy condition is induced by improper feeding. Mere infants are stuffed with food suitable enough for adults, but highly injurious to them, under the mistaken notion of accelerating growth" (1).

A few years earlier the medical officers had noted that wasting and strumous diseases in children like scofula were very common but "entirely avoidable by a proper regulated diet. We do not mean a more expensive diet, but a diet of a more rational sort, in which tea will not be so terribly abused" (2). The doctors regarded tea drinking as dangerous, "Tea infusions ... tannin infusions, three times a day" were a curse they said. "If not killing quickly, they are yet slowly and surely undermining and sapping all the vital organs of the body". Tea was also given to small children, "Mere infants of two and three are not infrequently fed on such in place of milk. When mothers are rebuked for their folly, their usual answer is 'Doctor they'll take nothing else' a reply which, being interpreted, means that for a time they have been given nothing else" (3).

Two years later in 1879 the medical officer again lamented the abuse of tea by adults and children. "We verily believe that one half of our duty would entirely disappear if only porridge and milk could twice a day be substituted for the all but universal tea and bread" (4). It is understandable that a luxury like tea should have been regarded by middle class doctors as an expensive indulgence that working people could ill afford particularly when it replaced porridge and milk; but drinking

1. 19th Ann. Rep. Glasgow Med. Miss.... p.9.
2. 15th Ann. Rep. Glasgow Med. Miss.... p.12.
3. 10th Ann. Rep. Glasgow Med. Miss.... p.14.
4. 12th Ann. Rep. Glasgow Med. Miss.... p.11.

sweet tea was, and has remained, one way in which the poor could vary their stodgy, dull diet (1).

The medical notes on a puny, wasted two year old record a typical conversation between a dispensary doctor and a child's mother:—

"Doctor - What food do you give it? Mother - The ruch-and-roon o' everything, doctor; he can tak onything.

D - what is his breakfast composed of? M - a drap o' tea and whatever's gaun. D - His dinner? M - Tea; the man's never hame and I scarcely ever mak a regular dinner.

D - What do you give, then, at night? M - Tea, he can drink an awfu' tea. D - What sort of tea is it that you give him? M - The same as we get, doctor. D - Has it milk in it? M - Sometimes he gets a little; but it's aye sweet - he likes it sweet. D - Why don't you give him porridge and milk? M - Doctor, orr incomes' sma' - my husband has been idle nine months." (2)

If many small children were fed in this manner it is scarcely surprising that they were so puny and lacked resistance to infectious diseases. But nutritious foods like milk were expensive.

According to the medical superintendent of the Medical Mission lack of money was the primary reason for the poor diets of working class people. There were families with five children under twelve years living on 14-16s. a week and families of seven who lived on 10s. a week. This income "... must pay for rent, fuel, clothes, and food; and no medical

1. In the 1930's George Orwell noted that it was common for the poor and unemployed to spend their limited resources on tea and sugar rather than on more nutritious (but plainer) food. As he observed, "Unemployment is an endless misery that has got to be constantly palliated, and especially with tea, the Englishman's opium. A cup of tea or even an aspirin is much better as a temporary stimulant than a crust of brown bread". G. Orwell, The Road to Wigan Pier (1937), p.96.
2. Cited in 11th Ann. Rep. Glasg. Med. Miss.... p.14.

treatment short of dietetic, is able to cope with the wasting and debilitating diseases induced by such dire want. About 120 gallons of cod-liver oil, really a fatty food, and nearly as much various chemical-food syrups, have been dispensed during the year, in seeking to stem the inroads of the various diseases directly caused by such destitution" (1).

In 1884 the medical officer noted that half the cases at the dispensary were produced or aggravated by insufficient food and because of lack of money it had not been possible to prescribe as much cod liver oil emulsion and chemical food syrups as was required. And though people might smile at the thought of "Oatmeal as a doctors' drug ... it is among the saddest things in our Mission Work to be sent to people needing it above all other remedies and not to have it to bestow" (2). The consumption of tea and white bread instead of more nutritious food was again noted,

"the substitution of tea and white bread at breakfast time for porridge and milk, and at dinner time for broth and potatoes, is a habit which not only continues to exist, but we believe, extends itself among the working classes of our city" (3).

Clearly malnutrition due to poverty and exacerbated by ignorance was still common among the Glasgow working classes in the 1880's.

A survey of working class diets carried out by Dorothea Lindsay in 1911 and 12 showed that there was still a significant section of the

1. 14th Ann. Rep. Glasg. Med. Miss.... p.12.
2. 17th Ann. Rep. Glasg. Med. Miss.... p.12.
3. *ibid.*

working population suffering from malnutrition. She found that while working class families with a regular income of over £1 a week were able to get a diet "approaching the proper standard for active life" those with smaller or less regular incomes failed "to get a supply of food sufficient for the proper development and growth of the body or for the maintenance for a capacity for active work" (1). Miss Lindsay also found that there was a correlation between the diet of families and the physique of children. She concluded, "When the weight is much below the average for that age, almost without exception the diet is inadequate" (2).

Other surveys undertaken in the early twentieth century confirmed the widespread existence of poor nutrition and poor physical standards and confirmed too that its underlying cause was low incomes and poverty. Dr. W.L. MacKenzie and Captain Foster made a survey of the heights and weights of Glasgow school children for the Scotch (sic) Education Department in 1905 and found that on average children in the Glasgow School Board's 73 schools were uniformly below the standard averages established by the Anthropometrical Committee of the British Association (3). For purposes of analysis the schools were divided into four groups according to the social class of the districts in which they were situated and it

1. D.W. Lindsay, Report upon a Study of Diet of the Labouring Classes in the City of Glasgow (Glasgow, 1913), p.27. This survey was one of the 17 used by Oddy in his analysis of working class diets; he concluded that it was common for the diets of the poor to be inadequate at this time, see D.J. Oddy, "A nutritional analysis of historical evidence: the working-class diet 1880-1914", in D. Oddy & D. Miller eds. The Making of the Modern British Diet (1976), pp.214-231.
2. ibid. p.30. She also found the main difference in the diets of those families with children with rickets and the others was the low fat content of the diets of the former (ibid. p.32). This was before the significance of vitamins had been established. For a local contemporary view of rickets see J. Thomson, "On the prevalence of rickets in the City of Glasgow and in the West of Scotland, and the relation of rickets to the food and water used", Proceedings of the Philosophical Society of Glasgow, XV (1884).
3. Report of Dr. L. MacKenzie and Captain Foster on the Physical Condition of Children attending the Public Schools of the School Board of Glasgow (P.P. 1907, LXV), p.iv.

was found that there was a direct association between the heights and weights of children, the social condition of the districts in which they lived, and the number of rooms in their homes. The survey concluded, "the one-roomed child, whether boy or girl, is always on the average distinctly smaller and lighter than the two-roomed; and the two-roomed than the three-roomed; and the three-roomed than the four-roomed. The numbers examined are so large, and the results so uniform that only one conclusion is possible, viz:— that the poorest child suffers most in nutrition and growth" (1).

These views were confirmed in a study made of the children (including children under school age) admitted to the Glasgow City Fever Hospital at Belvidere. This demonstrated that there was "a distinct connection between the height of a child and social status, of which the size of the house is the best index. These gradations cannot be casual, and would appear to indicate that bad housing and poor feeding considerably retard the growth of the child, particularly during the early years of life" (2).

This study also showed that there was an association between malnutrition and poor physique and with mortality. Children with rickets were smaller than non-rachitic children and came from smaller houses (3). Moreover the mortality of rachitic children aged between six months and two years

1. Rep. Dr. MacKenzie & Captain Foster ... (P.P. 1907, LXV), op.cit.p.v. The survey covered 72,857 children and was said (p.vi) to be at the time the most extensive survey of the heights and weights of children undertaken in Britain.
2. A.S. M. McGregor, "Physique of Glasgow children: an enquiry into the physical condition of children admitted to the City of Glasgow Fever Hospital, Belvidere, during 1907-1908", Proceedings of the Royal Philosophical Society of Glasgow, XL (1909), 163.
3. ibid. 169.

from measles and whooping cough was considerably higher than in similar non-rachitic children ⁽¹⁾. This observation was based on only a small number of cases but it bears out McKeown's belief that children with malnutrition suffer the effects of infectious diseases particularly severely ⁽²⁾ and, accordingly, that any improvements in standards of diet might be expected to have a significant effect on rates of mortality.

In the absence of a continuous series of dietary surveys throughout the nineteenth century and lack of quantitative data of an appropriate kind make it very difficult to assess trends in the standard of nutrition in nineteenth century Glasgow. Despite the continued existence of malnutrition at the end of our period, however, there are some reasons for believing that, on average, working class dietary standards may have improved slightly. First there was the trend in real wages which, as already noted, resulted in higher standards of living ⁽³⁾. Secondly, there were important developments in the wholesaling and retailing of food in the city in the second half of the nineteenth century which would have made some foods more readily available and cheaper ⁽⁴⁾. By 1896 the Bazaar, the wholesale fruit and vegetable market which had been laid out in Candleriggs in 1817, had tripled in size though it still could not accommodate the growing fruit and vegetable trade ⁽⁵⁾. By this time a growing demand for meat had stretched the facilities of the meat market and a new slaughter houses were planned ⁽⁶⁾. There are other

1. 32.8% against 21.1%, *ibid.* 172.

2. See below, pp. 392-7 for discussion of the relation between measles mortality and malnutrition and McKeown, *op.cit.* pp.135 ff.

3. See above, p. 334.

4. See J.M. Blackman, "Changing marketing methods and food consumption", in T.C. Barker, J.C. McKenzie, and J. Yudkin, eds. Our Changing Fare (1966), pp.30-46 for a general discussion of this point.

5. Bell & Paton, *op.cit.* pp.280-1.

6. *ibid.*

indications of the growth of the meat trade; lairage and slaughter houses had been built at Pointhouse Wharf, Yorkhill ⁽¹⁾ and at Shieldhall to deal with the growing traffic of imported cattle and the Dead Meat Market was opened in 1879 to handle the carcasses from the Yorkhill slaughter houses and frozen meat imported from the Americas and elsewhere ⁽²⁾. The Dead Meat Market soon became the centre of the wholesale butchers' trade in the West of Scotland and had a considerable influence on the structure of the retail trade; for instead of dealing in live animals, butchers began to buy "from the exposed carcasses such portions as suit their business; and thus the trade is better and more economically supplied, and food is more expeditiously distributed than under the old system" it was noted in the 1890's ⁽³⁾.

The second half of the century also saw the increasing mechanization and mass production of food. After the 1850's flour mills were powered by steam and several new, large mills (including John Ure's Regent Mills which were completed in 1887 ⁽⁴⁾) were built in Glasgow. There was a growing tendency for bread making to be concentrated in large central bakeries. In Glasgow bread making on a large scale was pioneered by the United Cooperative Baking Society ⁽⁵⁾ and in the 1870's and '80's the huge bakeries of J. & B. Stevenson, Bilsland Brothers, and W. & D. Beattie were built ⁽⁶⁾. Another instance of mass production of food was the development of biscuit making. McCall and Stephen produced biscuits on a large scale in their Adelphi Street Factory and was only one of

1. Completed in 1879, Bell & Paton, op.cit.
2. Which had been made possible by the development of refrigeration.
3. Bell & Paton, op.cit. p.287.
4. Hume, op.cit. pp.4-5.
5. There were other co-operative bakeries also.
6. Hume, op.cit. pp.10-11. By 1891 J. & B. Stevenson had grown to be one of the largest bakeries in the country. Its two Glasgow bakeries produced 100,000 half-quartern loaves a day, Stratten, op.cit. pp.57-9.

several biscuit manufacturers in the city ⁽¹⁾. A luxury like biscuits, was only becoming available to wider sections of society as incomes rose towards the end of the century ⁽²⁾. Other manufactured foods that were produced to satisfy a growing demand in the city include jams, preserves, confectionery, and mineral waters ⁽³⁾.

The last forty years of the century also saw important developments in methods of food retailing in Glasgow. In the 1860's and '70's co-operative societies were established in various parts of the city and the S.C.W.S. was founded in 1868 and the U.C.B.S. in 1869 ⁽⁴⁾. Thomas Lipton, whose retail and wholesale provision chain was to have world wide ramifications, opened his first shop in Glasgow in 1871 and by May 1872 had four shops in the city ⁽⁵⁾. Lipton's shops specialised in selling the few basic provisions that made up the so-called "Irish trade"; eggs, butter, cheese, bacon, and hams, all products for which there was an increasing demand as real incomes rose. As business grew Lipton began to look further and further afield for sources of supplies. In 1888-9 three quarters of what he sold was being imported from Ireland ⁽⁶⁾ and soon he was importing cheese from the U.S. and Canada. He also expanded his operations into manufacturing and processing in order to supply his shops; by 1878 he had facilities for drying and curing his own hams and smoking bacon in Glasgow and he began to manufacture sausages and pies ⁽⁷⁾. In 1891 he opened a bakery in the city to supply his shops with cakes and biscuits ⁽⁸⁾. The economies made possible by

1. Stratten, op.cit. pp.84-5, and Hume, op.cit. p.10.
2. On biscuits, see T.A.B. Corley, "Nutrition, Technology and the growth of the British biscuit industry, 1820-1900", in Oddy and Miller, op.cit. pp.13-25.
3. Stratten, op.cit.
4. 3rd S A. op.cit. p.384.
5. P. Mathias, Retailing Revolution (1967), p.96.
6. *ibid.* p.97.
7. *ibid.* p.99.
8. *ibid.* p.103.

the size and scale of his enterprises enabled Lipton to undercut the prices charged by the "family provision merchants"; for instance when he opened his first shop in London his prices were up to 50% lower than his competitors ⁽¹⁾. When he went into the tea trade, which he did in characteristic style in 1889, he was able to sell his own blends for 1s.2d. to 1s.9d. a pound at a time when family grocers were charging 3_4s. ⁽²⁾. Improvements in retailing like these in Glasgow led to more competitive pricing of many food stuffs in the late nineteenth and early twentieth centuries. Lipton prospered by supplying the new, growing, mass market for dairy products and manufactured foods (many hitherto considered to be luxuries) that was created by the increasing real incomes of working people.

By the end of our period an increasing number of people in Glasgow were able to buy the kind of food products sold by retailers like Lipton and the numerous co-operative societies in the city. A growing variety of food was now widely available and food was of a better quality now that there were effective legal sanctions against adulteration ⁽³⁾. All this suggests that in Glasgow, in spite of the undoubted widespread poverty and malnutrition that still existed, it is possible that many were enjoying a more nutritious diet.

McKeown has stressed that there is a direct relationship between the state of health of an individual (particularly a child) and his reaction to infectious disease ⁽⁴⁾. Those who suffer from some degree of malnutrition (not only from overt diseases of malnutrition like

1. Mathias, op.cit. p.98.

2. ibid. p.101.

3. See above, pp. 78-9 on food and meat inspectors in Glasgow.

4. McKeown, op.cit. pp,134-142.

rickets and pellagra) have less resistance to infection, suffer the effects of infectious diseases more severely and have higher mortality rates than those who are properly nourished. Conversely, populations in which standards of nutrition are improving will suffer less seriously from most kinds of infectious disease. It is possible that the standard of nutrition in Glasgow was improving in our period, despite the continued prevalence of malnutrition among the poor, and that this was at least a factor contributing to the decline of infectious diseases (then the major cause of mortality) in the city.

11. Mortality in Glasgow: the pattern and its causes

The object of this chapter is to summarize the reasons discussed in this study accounting for the fall in mortality from the diseases that contributed most to the overall decline in mortality in Glasgow between 1855 and 1911. As already noted the fall in mortality from infectious diseases, tuberculosis, and respiratory diseases account for most of the total mortality decline ⁽¹⁾ and it is the reasons for the decline in these diseases that will be considered.

1. See above Chapter 2 and Table III.

(1) Typhus

It is not possible to measure the decline in typhus mortality precisely as the Registrar General only differentiated typhus and typhoid in his data in the mid-1860's. Typhus, typhoid, and continued fever ⁽¹⁾ together account for some 17% of the decline in Glasgow mortality between the 1860's and the early 1900's and some 17-20% of the fall in Scottish mortality. As ^{Fig} 4 shows, typhus declined sharply in our period. Epidemics of fever (the collective term covering both typhus and typhoid) were common in the first half of the nineteenth century, sweeping through the poorer quarters of Glasgow and filling the wards of the Royal Infirmary. These frequent fever epidemics, according to Dr. Russell, were "almost entirely caused by typhus" ⁽²⁾. With so much fever in the city it is not surprising that Glasgow doctors were among the first medical men to establish that typhus and typhoid were two entirely different diseases ⁽³⁾. Fever was also common in Edinburgh and Dr. W.T. Gairdner (later M.O.H. of Glasgow and Professor of Medicine at Glasgow University) had first hand experience of it when he was physician at the Edinburgh Royal Infirmary. From 1848 he held the view that typhoid was a distinct form of fever ⁽⁴⁾, pointing out that the rashes of typhoid and typhus differed considerably ⁽⁵⁾. It was

1. Continued fever was the collective term for typhus, typhoid, and relapsing fever. Table 4 shows the decline of typhus (1855-64 includes all "fever").
2. Russell (1905), op.cit. p.92.
3. Dr. Robert Perry of the Glasgow Royal Infirmary published his "Observations on continued fever, as it occurs in the City of Glasgow hospitals" in the Edinburgh Medical Surgical Journal XLV in 1836 and in 1840 Dr. A.P. Stewart who had worked as a house surgeon at the Infirmary in the fever epidemics of 1836 and 37 published his paper "On typhus and typhoid fever", Edinburgh Medical Surgical Journal (1840), see Rosen, op.cit. p.630, and J. Glaister, "The epidemic history of Glasgow during the century 1783-1883", Proceedings of the Philosophical Society of Glasgow, XVII (1885). Typhus was also distinguished from typhoid by Gerhard in the Philadelphia typhus outbreak of 1837 (Topley and Wilson, op.cit. p.2344).
4. W.T. Gairdner, Clinical Medicine (Edinburgh, 1862), p.110.
5. ibid. p.113.

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only in the twentieth century, however, that it was established that typhus is spread by the body louse ⁽¹⁾ and as Rosen has pointed out the overcrowded, filthy, poverty stricken homes of central Glasgow were an ideal breeding ground for a louse-borne rickettsial disease that flourishes on unwashed bodies and clothing ⁽²⁾. Dr. Russell observed that typhus was spread from clothing, although it was thirty years before it was shown that the body louse was the vector. He reported in 1875 on the case of a servant girl from a typhus-ridden close who had infected her mistress with the disease. In this case, "The germs

which passed to her mistress were not in but about the girl's person, and no one who knows how largely these people who sleep in the clothes they wear can fail to see how they become distributors of disease whenever they mingle with the public in close places" ⁽³⁾.

Dr. Gairdner was well aware that typhus was associated with overcrowding, dirty houses, and insanitary conditions ⁽⁴⁾. "It is a disease especially of the poor, or rather of these when massed together in towns;" he noted ⁽⁵⁾. He was convinced of the association between crowding and typhus, writing in 1865 "typhus fever of a certain degree of intensity and persistence invariably points to deficiencies of house accommodation, or to great

1. By Nicholle and his colleagues in 1911, Topley and Wilson, op.cit. p.2343.
2. Rosen, op.cit.
3. G.C.A. El 20 2, p.348. The clothing of typhus cases was very infectious. One family with the disease which had gradually pawned clothing as its income was cut off through illness, infected the pawnbroker's assistant (G.C.A. El 6A 14, 15 Jan.1887). In 1888 the sanitary inspector Peter Fyffe established that in the previous twenty years no less than five men and five washerwomen at the municipal wash house at Belvidere had contracted typhus and died (G.C.A. El 6A 16, p.252). The holding of wakes over the bodies of typhus victims was also a problem because of the risk of infection from clothing. The wakes of a man and his wife who had died of the disease infected twelve people, for example (G.C.A. El 20 5, pp.367-8). Russell was prepared to issue a warrant (under the 43rd Section of the Public Health Act) to allow sanitary inspectors to remove the bodies of typhus victims before a wake could be held (Sanitary Journal, 157, March 18 1889; section 9 of the Glasgow Police (Amendment) Act, 1890 prohibited wakes being held over those who had died from infectious diseases).
4. Hence it was common in jails ("gaol fever") and on military campaigns ("camp fever"), Topley and Wilson op.cit. p.2344.
5. Gairdner (1862) op.cit. p.152.

structural defects accompanied by overcrowding, as its cause" (1).

He therefore took steps to control gross domestic overcrowding and thus limit the spread of the disease although he was obviously unaware of the precise means by which the disease was transmitted (2). The strongest measure taken in the attempt to control overcrowding was use of the "ticketing" clause of the local Police Act (3) which Gairdner implemented on his appointment as medical officer. A year later he was able to show that the incidence of typhus was directly related to the degree of overcrowding found by the night inspectors in the course of their inspections of ticketed houses. He believed that ticketing and night inspection were controlling typhus in the central districts where it had been endemic hitherto (4).

Dr. Russell (Gairdner's successor) was as convinced as his predecessor of the value of ticketing; "Typhus always gives a presumption in favour of overcrowding and it is only by ticketing that this can be detected", he noted in a report to the committee of health (5). In the 1870's ticketing was extended to regulate the density of occupation of houses to which those, displaced by recent clearances carried out in the central districts by the railway companies and the Improvement Trust, had moved sometimes carrying typhus with them; "judicious but firm pressure through night inspection for overcrowding" was applied to disperse these

1. G.C.A. DTC 14 2 2, Memo for the Chairman of the Sanitary Committee, to accompany a Map of the Sanitary Districts, Nov. 1865.
2. McGregor, writing of his experience with typhus in the early years of this century, notes that it was believed that the disease was spread by fleas and the medical staff went to some length to avoid infection. At Belvidere there was a special stethoscope 2½ ft. long which kept a doctor a safe distance from a patient with fleas. McGregor, op.cit. p.18.
3. See above, p. 325 ff.
4. G.C.A. DTC 14 2 1, Memo for the Sanitary Committee of the Board of Police ... showing the relation of epidemic fever to overcrowding in the Sanitary Districts of Glasgow, by the M.O.H. March 1 1866.
5. G.C.A. El 20 2, p.179.

people ⁽¹⁾. When a little later cases of typhus were reported in the Southern District ticketing was again extended ⁽²⁾. Typhus tended to occur in small houses and so Russell concentrated on getting one and two apartment houses ticketed since, "When Typhus does appear in such houses it spreads like wildfire, as is shown by the large number of cases per house as compared with the isolated cases found in larger houses" ⁽³⁾.

It is questionable, however, whether the system of ticketing really did control overcrowding. As earlier discussion has shown by the 1880's some 50,000 inspections were being carried out annually and by the turn of the century the percentage of houses found to be overcrowded began to fall ⁽⁴⁾. The penalties imposed on overcrowders were not severe and probably not sufficient to have acted as an effective deterrent ⁽⁵⁾. Furthermore, the medical officer of health concluded in the early 1900's that ticketing and night inspection had little effect on crowding while there was still a shortage of cheap housing ⁽⁶⁾. Having the worst housing in the city under constant surveillance was of value, of course. The inspectors had the opportunity of identifying obvious sanitary defects and would take appropriate action and if they found cases of typhus they would arrange for admission to hospital and for the isolation of contacts.

With the provision of municipal fever hospitals it was possible to segregate cases of typhus readily and the epidemic inspectors would arrange for disinfection of the typhus-ridden house and clothing. As Table XLVIII shows an increasing proportion of deaths from the disease

1. G.C.A. El 20.2, pp.245-6.
2. *ibid.* p.365.
3. G.C.A. El 20 3, p.29.
4. See above, p.328 and Table LXIV.
5. *ibid.*
6. See above, p.328-9.

took place in hospital from 1870 onwards which indicates that a growing proportion of cases of typhus were being diagnosed and receiving hospital treatment. There was, however, no effective treatment for typhus until the introduction of antibiotics and (as Table XLVI shows) the mortality from this cause at Belvidere hospital actually rose. Nevertheless the fact that such a large proportion of cases were being identified and treated by the turn of the century indicates that the public health supervision in Glasgow was thorough.

The contacts of a typhus case would be persuaded to enter the reception house where they would remain for the incubation period of the disease. A reception house had been opened in Glasgow in 1872 where those who had been in contact with infectious cases could be isolated while their homes and clothing were washed and disinfected and observed for early signs of disease ⁽¹⁾. This house proved to be particularly useful for isolating potentially infectious typhus contacts. For example, of the 40 people (from ten families) who had been in contact with typhus and were admitted to the reception house in July 1877, five developed symptoms of the disease while in the house. As Russell remarked, in such cases, "the transference of the healthy members of the family not only prevents the spread of infection in the neighbourhood, but cuts short the process of self-infection within the family itself".

1. In 1871 the committee of health had heard from the Greenock sanitary inspector of the reception house that had been recently opened there in which the healthy inmates of fever-ridden homes could be accommodated while their clothing was washed and disinfected. The assistant M.O. visited the house in Greenock and suggested that one should be opened in Glasgow. A house in Weaver Street was duly bought and equipped (El 20 1, pp.283-5). In 1891 an additional reception house was opened in South York Street and subsequently the Weaver Street house was replaced by a purpose built house on the site of the Parliamentary Road hospital. It accommodated 189 adults, Municipal Glasgow, op.cit. pp.230-3.

It was the only way ridding clothing of the "germs" and thoroughly cleaning and disinfecting the house (1). Russell regarded the reception house as an essential part of typhus control and complained bitterly in August 1883, when it was found that the house could not accommodate all the recent typhus contacts, that it "very seriously influences the efficiency of our operations against typhus not to be able to accommodate infected families while their clothing and homes are being cleansed and disinfected" (2). He further lamented that he had no power to remove contacts to the reception house as he had to remove infectious patients to hospital. People were not always willing to enter the reception house and hand over their clothes for disinfection; one young man "thought so much of his new suit of clothes as to abscond with them" (3).

Besides direct measures to control the spread of typhus by regulating overcrowding, hospitalizing cases, and isolating contacts there was another factor that contributed to the decline of the disease. By the end of our period it is very likely that there had been a considerable improvement in standards of personal hygiene with the increased availability of cheap cotton clothing, mass produced soap, and public baths and wash houses. There had long been a public wash house on Glasgow Green and there were also two other public wash houses in the city. In the late 1860's, however, the Corporation began to extend this very limited provision by building public washing facilities and by 1914 there were 20 public baths and wash houses and a further two were in the

1. G.C.A. E1 20 3, p.277.
2. G.C.A. E1 20 7, p.331.
3. G.C.A. E1 6A 16, p.146.

(ii) Enteric (typhoid) fever, diarrhoeal diseases and cholera

The aetiological agent of enteric fever is the typhoid bacillus. As with such diseases as cholera and diarrhoea it is spread in contaminated water and food. In Glasgow Dr. Russell was well aware of the relationship between contaminated water supplies and these diseases. He pointed out that all diarrhoeal diseases ⁽¹⁾ had a common cause, namely, "organic, mainly excremental impurity. The degree of chronic prevalence of Diarrhoea, gives a fair measurement of the probability of Cholera becoming epidemic in a locality and indicates the soil whence a chronic crop of Enteric Fever is likely to spring" ⁽²⁾.

In towns where there was an impure water supply there would be a high general rate of diarrhoeal diseases ⁽³⁾, violent outbreaks of cholera would occur when it was introduced locally, and enteric fever would be endemic, with occasional epidemics. With a pure water supply, "then you have a drain moderated in proportion to the character and efficiency of the local system of excrement collection and disposal, to the scavenging and the infinite variety in family cleanliness in this regard which in cities especially tells heavily for or against the young. Cholera will obtain but a passing foothold, should it happen to alight, and Enteric Fever, unless distributed in the milk supply, will occur only in scattered cases" ⁽⁴⁾.

1. In which he included diarrhoea, cholera, and enteric fever, though enteric fever is, strictly speaking, a systematic not a diarrhoeal disease.
2. Russell (1895), p.101.
3. The diarrhoeal diseases other than cholera and enteric fever comprised such conditions as dysentery and gastro-enteritis which are water borne diseases, Topley and Wilson, op.cit. p.2657-8. On infantile diarrhoea see below, p. 400 ff. ^{F¹⁹} 7 shows the downward trend in diarrhoeal disease mortality.
4. Russell (1895), op.cit.

Nevertheless, the public health measures that controlled water borne diseases like enteric fever and cholera were introduced before the mode of spread of those diseases had been established. There was still great controversy between those who believed they were caused by miasmas produced by the putrifaction of organic matter and those who held that they were caused by contagion by some living organism ⁽¹⁾. William Budd, a Devonshire doctor, demonstrated in 1856 that enteric fever was spread by contagion and that the infected material was excreted in the faeces ⁽²⁾. He showed that the infection could be spread through a family by the hands of those who were nursing the sick and, more significantly, that contaminated water and milk supplies played a part in the epidemic spread of the disease ⁽³⁾. This view was not generally accepted at this time and definite confirmation came only when the typhoid bacillus was identified in 1880 and isolated in 1884 ⁽⁴⁾. By then the association between the disease and contaminated water supplies was widely appreciated. In his important work on the fevers Murchison wrote that, "it is now almost universally admitted in this country that enteric fever is traceable to air or drinking water polluted with the products of putrifying sewage" ⁽⁵⁾. In 1869 Dr. Russell at the City of Glasgow Fever Hospital quoted Murchison's 1868 Report of the London Fever Hospital to the effect that the prevalence of enteric fever meant "bad drainage and bad drinking water" ⁽⁶⁾. Russell was obviously well aware at this time that contaminated water supplies and poor sanitation were sources of enteric fever but he too believed that

1. Rosen, op.cit. p.637.
2. W. Budd, Lancet ii (1856), 618 & 694 and Typhoid Fever (1873).
3. Topley and Wilson, op.cit. p.2005.
4. The typhoid bacillus was identified by Eberth and isolated by Gaffky.
5. C. Murchison, A Treatise on the Continued Fever of Great Britain, 2nd ed. (1873), p.482. Murchison was a firm believer in the miasmatic theory, see p.6. for example.
6. G.C.A. DTC 14 2 3, Report of the City of Glasgow Fever Hospital, 1868-9, p.19.

it was also spread by gases from badly ventilated sewers and w.c.'s.

"It is contagious", he noted, "almost entirely through abdominal discharges of those affected, and spreads chiefly through surface contamination of the water supply, through gaseous emanations from sewers defectively trapped, and w.c.'s insufficiently supplied with water".

He had traced the distribution of typhoid cases from the records of the City Fever Hospital and the Royal Infirmary and he found that all cases came from houses where there was some sanitary defect such as contaminated water supply, an unventilated w.c. soil pipe, or an untrapped sewer. As he noted, "it is not so much the presence of decomposing matter as the prevention or limitation of the great natural process of disinfection by air, earth, and water, which determines a deleterious action on the inhabitants" (1).

Russell was mistaken in supposing that enteric fever or other diarrhoeal diseases were spread in the air but measures taken to improve sanitation in Glasgow took account of the fact that these diseases were spread in water, thus reducing contamination. The decline of mortality from these diseases could only have occurred, therefore, with improvements to the water (and to a lesser extent the food) supply and of the system of sanitation.

In England and Wales mortality from enteric fever and diarrhoeal diseases declined from the 1870's when, according to McKeown, improvements in water supply and sewage disposal first became apparent (2). Data on typhoid mortality in Glasgow is available from 1865 and (as Fig 5b

1. J.B. Russell, "On the distribution of Enteric Fever in Glasgow," Glasgow Medical Journal I (1869), 59-66.
2. McKeown, op.cit. p.68.

shows) fell only in the 1880's. With typhus it accounted for some 17% of the overall mortality decline between the 1860's and the early 1900's, other diarrhoeal diseases account for a further 6% of the decline ⁽¹⁾, but cholera accounts for no significant part of the mortality decline as few cases occurred in the city after the mid-1850's.

There was a significant number of deaths in Glasgow from cholera earlier in the nineteenth century ⁽²⁾ 2,842, 3772 and 3,882 respectively in the epidemics of 1832, 1849 and 1854. At this time mortality from diarrhoeal diseases of all kinds was probably high in Glasgow ("Bowel complaints" figure prominently in the Bills of Mortality) when the city's water supply was drawn from wells and the polluted river Clyde. From 1848 part of the city south of the Clyde was supplied from the Brock burn by the Gorbals Gravitation Water Company and from 1859 pure water was piped from Loch Katrine ⁽³⁾. With the introduction of Loch Katrine water, however, deaths from cholera fell. There were 68 deaths in the only cholera epidemic that occurred in the city after Loch Katrine water began to flow ⁽⁴⁾. Clearly a pure water supply had prevented a "violent explosion" of cholera ⁽⁵⁾. No doubt it also reduced the incidence of other diarrhoeal diseases.

It is possible that a reduction in typhoid mortality followed the introduction of a pure water supply in Glasgow, but this is very difficult to establish as the Registrar General's data differentiated typhoid from typhus only from the mid-1860's. Thereafter mortality from

1. See Table III.
2. Data on cholera deaths before vital registration are probably fairly reliable as it was such a dangerous and contagious disease that national and local authorities had to take special action to control it.
3. 3rd S.A. op.cit. pp.563-5.
4. Russell (1895), op.cit. pp.101-2. The aetiological agent of cholera, vibrio cholerae, was demonstrated much later by Koch in 1884.
5. ibid. and see above, p.233.

typhoid began to fall only in the 1880's. Significantly this decline was associated with the introduction of important improvements in sanitation and also with improvements in the purity of the supply of milk.

Glasgow lacked both adequate sewers and an effective means of treating sewage until the 1890's when a scheme to complete a main drainage system for the city and construct sewage disposal works was undertaken ⁽¹⁾. Although by 1876 88½ miles of sewer had been built ⁽²⁾ much of the city, particularly the working class areas, lacked this basic amenity. In 1872, for instance, the sanitary inspector recommended that the sanitary condition of many of the undrained streets in the city would be improved by a daily flush of water to flush the gutters and carry stagnant sewage to the nearest sewage inlet ⁽³⁾. Three years previously the commissioners of the North British Daily Mail, noting that the poor had to rely on ashpits and dungsteads, commented "Why should the River Clyde, which is common property, be made the common sewer of the rich and middle classes whilst the poor are forced to make thier homes amongst their own filth?" ⁽⁴⁾. The Clyde was so polluted that the medical officer of health, Dr. Giardner, had "given it up as a health matter ... it is a stink question and it will solve itself as a stink question" ⁽⁵⁾.

Most of Glasgow did not have a water borne sewerage system for much of our period. In 1867 there were no w.c.'s at all in one third of the city and the provision of w.c.'s was meagre in the remaining area ⁽⁶⁾. Sanitation for most of Glasgow was provided by communal middens, privies,

1. Municipal Glasgow, op.cit., pp.199 & 265 ff.
2. ibid. p.192. Between 1876 and 1902 a further 41 miles of sewer were built and another 10¼ miles between 1902 and 1912.
3. G.C.A. DTC 14 2 38, 2nd Annual Report of the Sanitary Inspector, 1872, p.33.
4. 1st Rep. San. Cmmm. N.B.D.M. Nov. 1869. Glasgow sewage was not treated until the first sewage plant was opened at Dalmarnock in 1894. The night soil was collected from privies and ashpits by the Cleansing Dept. and sold to farmers for manure.
5. First Report of the Royal Sanitary Commission (P.P.1869,XXXII), p.436.
6. J.M. Fraser, "Glasgow and the River Clyde in the context of river pollution", Journal of the Institute of Sewage Purification (1963), 411.

or ashpits ⁽¹⁾ which were emptied periodically by a "night man" who shovelled the contents onto a barrow "till the air is loaded with noxious fumes and sickening smells, causing the inhabitants of a hundred houses hermetically to seal their windows in order to keep out the perfume ..." ⁽²⁾. Dr. Gairdner increased the frequency with which ashpits were emptied so that they were less likely to overflow and he had some of the worst ones reconstructed ⁽³⁾. In 1870 he reported that the ashpits containing night soil which were situated in particularly confined places had been removed and a Bell Cart system instituted instead ⁽⁴⁾. Gradually further improvements were made to the system of sanitation; pan privies which could be more easily and hygienically emptied replaced the more objectionable drop privies and privy middens ⁽⁵⁾. Public Health legislation specified minimum standards but was ambiguous. Section 19 of the Public Health (Scotland) Act laid down that an owner of a property could be compelled to provide sufficient privy, ashpit, or w.c. accommodation but as the sanitary inspector pointed out, it was unclear precisely what "sufficient" meant in this context ⁽⁶⁾ and many tenements lacked adequate sanitary provision. It was only in 1889 that privies were finally condemned and the decision taken that the more hygienic water borne system of sanitation should be installed throughout the city. A Special Committee had reported in March 1889 on Unhealthy Buildings and concluded that, "the privy is in no case a sufficient provision for flatted tenements. It is never used, and cannot in the nature of the case be used, by females and

1. Fraser, op.cit.

2. 1st Rep. San. Comm. N.B.D.M. op.cit.

3. 1st Rep. Royal San. Comm.... (P.P. 1869, XXXII), p.436-7.

4. G.C.A. DTC 14 2 38, Annual Report of the M.O.H. for 1870, pp.30-1. No details of this system are given.

5. G.C.A. El 20 7, p.339, but even in 1883 the Sanitary Dept. was still pressing houses owners to install pan instead of drop privies.

6. Report on the Operation of the Sanitary Dept. 1888, p.6.

seldom by children. The result is that every sink is practically a water closet, and the stairs and courts, and roofs of outhouses, are littered with deposits of filth cast from the windows. Some form of wash out closet, in the proportion of one to every two, or at most three families, ought to be provided ... in a back jamb" (1).

A local Act came into force in the following year containing powers to enforce these recommendations. Section 30 of the Glasgow Police (Amendment) Act, 1890, required that all houses should have an adequate water supply, a sink connected to a sewer and, when so required, owners of houses must provide "adequate and suitable w.c. or other latrine accommodation" convenient to the house. Only now could a determined effort be made to rid the city of privy middens which were a constant hazard to public health.

The sanitary department began to issue notices to property owners requiring the installation of w.c.'s (2), by 1893 3,755 w.c.'s had been installed under the terms of the 1890 Act (3), and by 1897 the sanitary inspector estimated that it would take only two more years to complete the project (4). This was rather an optimistic view for, as the report of 1898 noted, w.c.'s had not been installed in the most crowded and insanitary property where they were most badly needed. Most had been put into houses fronting streets and little progress had been made in the backlands where conditions were usually worst. As a result,

1. G.C.A. E1 4 23, p.383.
2. 22nd Annual Report on the Operation of the Sanitary Department of the City of Glasgow, 1891. In 1892, however, the department reduced its demands as the water pressure in the city was inadequate at times, 23rd Ann. Rep. Sanitary Dept. 1892.
3. 24th Ann. Rep.... of the Sanitary Dept. 1893.
4. 28th Ann. Rep.... of the Sanitary Dept. 1897.

"in courts surrounding such buildings, the offensive wet middens remain, polluting the atmosphere, and aggravating the insanitary conditions which prevail more or less in all such confined areas".

In the summer wet middens were especially obnoxious and urgent action was required to provide the backlands with proper sanitation (1). By the following year although some 10,000 w.c.'s in all had been installed, work in the backlands was proceeding slowly as there were administrative difficulties (2).

Despite these efforts conditions remained very poor in places. Two gentlemen who reported on sanitary conditions in Glasgow in 1901 were particularly shocked by the sanitary state of the backlands. They had found a block of tenements with no w.c.'s (though two were about to be completed) where the inhabitants had to resort to a public latrine on Glasgow Green. They also reported a case where one doorless privy served a total of 85 people (3). No doubt such examples were not unique. Sanitary conditions in Glasgow, though improved, were still far from ideal. Even when privies were replaced by communal w.c.'s there were still problems. A w.c. that was shared by four or five families was likely to be used by "all and sundry, and are made the common receptacles for all sorts of debris, with the result that they are continually being choked and flooding the stairs and lobbies from top to bottom (4).

Not surprisingly blocked w.c.'s were one of the most common nuisances with which the sanitary department had to deal. The city authorities

1. 29th Ann. Rep.... of the Sanitary Dept. 1898, p.9. More statutory officials were involved in this work than there had been hitherto.
2. G.C.A. E1 34 10, 30th Ann. Rep.... of the San. Dept. 1899, p.9.
3. G.C.A. DTC 14 1 36, A. Phelps & T. Bailey, Report on the Sanitary Condition of certain parts of the City of Glasgow.
4. 39th Ann. Rep.... of the San. Dept. 1908, p.10.

therefore obtained powers to prosecute all the tenants responsible for a w.c. in nuisance cases of this sort (1).

In spite of these problems and weaknesses, there is little doubt, however, that the replacement of the privy system by water borne sanitation improved domestic hygiene, lessened the chance of food contamination and contributed to the reduction in mortality from typhoid and other diarrhoeal diseases that occurred in this period (2).

Improvements in the quality of milk supply also played a part in the reduction of typhoid mortality. Dr. Russell had discovered that the epidemics of enteric fever that broke out in the 1870's and '80's were all milk borne (3). He therefore took steps to regulate conditions in the byres within the city (4). From 1875 all places that sold milk in the city were to be visited each week by a sanitary inspector who ensured that there was no one with an infectious disease on the premises and that no one who attended the sick also sold milk (5). Subsequently measures were taken to prevent milk being sold from premises where there was direct communication between the shop and the family living quarters in order to reduce the chance of milk getting contaminated (6). It was much more difficult, however, to control conditions on the dairy farms that sent milk into the city and Russell had great trouble in getting the central authorities to take action against lax rural sanitary authorities.

1. Under section 12 of the Glasgow Corporation (Police) Order, 1904.
2. See Fig. 5b and Table III. Russell regarded the introduction of the smoke machine to test drains as a major step in the control of nuisances. Smoke was pumped into house drains and revealed imperfect joints through which it leaked. At this time sewer gases were thought to spread disease, hence the concern of the public health authorities that house drainage systems should have air-tight joints and proper traps. Though the smoke test was introduced as a means of testing whether joints of drains were air-tight it was also a way of testing whether they leaked and might thus contaminate water supplies.
3. Russell (1905), *op.cit.* p.336.
4. The Cattle Sheds in Burghs (Scotland) Act, 1866, gave magistrates powers to inspect, licence and regulate byres and cowsheds.
5. G.C.A. E1 20 2 p.201.
6. G.C.A. E1 20 2 p.223.

In 1878 there was an outbreak of enteric fever in the west end of Glasgow and Hillhead in which there were 166 cases and 16 deaths; 16 of the cases (and three of the deaths) were among university students who had contracted the disease in the university refreshment room ⁽¹⁾. The fever was traced to milk from dairies in Hillhead which were supplied by a farm near Stonehouse. On the farm, which was a picturesque building with very primitive sanitation, a servant with enteric fever was found who had been the source of the outbreak. As a result of this epidemic the M.O.H. wrote a Memorandum on the Milk Supply of Glasgow in which he proposed that legislation should be passed to control conditions on dairy farms. A copy of this memorandum together with a draft bill was sent to the Lord Advocate but he took no action ⁽²⁾. Dr. Russell also went to London and submitted proposals to the Lord President of the Council, the Duke of Richmond, as there was a relevant measure (the Contagious Diseases (Animals) Bill) before Parliament ⁽³⁾. Section 34 of this bill (which became the Contagious Diseases (Animals) Act, 1878) empowered the Privy Council to issue orders relating to conditions in dairies and milkshops. In November 1878 the Glasgow authorities petitioned the Privy Council to issue such an Order ⁽⁴⁾ and in July of the following year the Dairies and Milkshops Order in Council was issued which contained powers to regulate the production and sale of milk. Unfortunately these regulations were to be enforced by the often ineffectual rural local authorities ⁽⁵⁾ who, as Russell discovered in the

1. G.C.A. DTC 14 2 5. Report on outbreak of enteric fever in the west-end of Glasgow and Hillhead.
2. P. Fyfe, "Some important points in the sanitary work of a great city", Proceedings of the Philosophical Society of Glasgow XIX (1889), 258.
3. G.C.A. El 20 4, p.48.
4. *ibid.* p.200. The Glasgow authorities were obviously particularly concerned about this matter.
5. The Board of Supervision had called the attention of all local authorities to their duties under the Order. 34th Ann. Rep. Board. Super... (P.P. 1878-9, XXX).

next few years, were reluctant to take appropriate action. Moreover, the Board of Supervision, the central public health authority in Scotland, lacked medical inspectors who could investigate complaints.

In 1884 an outbreak of enteric fever at the Royal and Western Infirmary and the City Fever Hospital was traced to a farm near Fergus-hill in Ayrshire. Russell reported the matter to the Board of Supervision which merely sent a copy of his report to the local authority concerned (Kilwinning) with the advice that the law should be observed. Russell complained bitterly that this was the second time that Glasgow had suffered from the inaction of the Kilwinning local authority ⁽¹⁾. But as he said the Board of Supervision lacked executive power. What was needed was, "A local inquiry held by a competent officer of the Board of

Supervision such as would have been ordered in England in circumstances not half so grave as the poisoning of a city", which "would sweep aside all specious excuses, and uncover the facts; but the Board of Supervision has no such officers on its staff. Dr. Littlejohn is over-worked and underpaid. The Poor Law inspectors are absorbed in their special duties. It is pinched and starved in its resources, and instead of taking advantage of such occurrences as these outbreaks of fever to proclaim the fact and rouse public opinion to its support in pressing upon the Government the urgent necessity for immediate reform of the Sanitary Administration of Scotland, it condones all defects and derelictions of duty ..." ⁽²⁾.

1. An outbreak of typhoid in Glasgow in 1880 had been traced to milk from a Kilwinning farm.
2. J.B. Russell, Remarks by the Medical Officer, on "Report by Kilwinning Local Authority to the Board of Supervision", in reference to an outbreak of Enteric Fever in Glasgow, and the Sanitary Conditions on Dairy Farms (Glasgow, 1885), pp.11-12.

The Privy Council was sent a copy of Russell's report on the outbreak but when it contacted the Kilwinning local authority it was only to be informed that the Act of 1878 and the Dairy and Milkshops Order of 1879 "have been and are being carried out" (1). Thus the Order had little positive result. Fresh legislation was required to establish competent local authorities in rural areas to administer new public health regulations that would include powers to control conditions on dairy farms. Under section 9 of the 1886 Contagious Diseases (Animals) Act powers relating to Dairies, Cowsheds, and Milk shops were transferred from the Privy Council to the Board of Supervision and the local authorities which acted under the 1867 Public Health (Scotland) Act. The Board of Supervision was therefore able to take a more active part in enforcing the regulations. But it was not until 1897 that rural public health administration was reformed by the Public Health (Scotland) Act of that year.

Dr. Russell himself took steps to get conditions on the farms supplying Glasgow reformed. In 1888 he wrote a pamphlet called "The Sanitary Requirements of a Dairy Farm" which was distributed to the dairy farms which supplied the city and to milk agents. Milk dealers were advised to visit the farms from which they bought their milk and to insist, as a condition of contract, that the supply of milk from the farm would be stopped if there was any infectious disease present. With some persuasion the Dairyman's Association agreed to adopt a form of contract of this sort. In addition the Corporation set an example by insisting that the farms supplying the Fever Hospitals were inspected and the Western Infirmary followed suit (2). Only with the 1890 Glasgow Police

1. Russell (1885), op.cit.

2. Russell (1895), op.cit. pp.76-7.

(Amendment) Act, however, did the city obtain power to prohibit the sale of milk from farms beyond the city on which there were cases of infectious disease (1).

Thus milk borne enteric fever was controlled by regulating dairies and milk shops within the city and dairy farms in the country. With the adoption of the Infectious Diseases (Notification) Act of 1889 it became much easier to locate the sources of milk borne outbreaks of enteric fever at an early stage. This, together with improved sanitation in rural areas and the introduction of the pasteurisation of milk in the 1890's, led to a fall in the incidence of milk borne enteric fever (2).

The coincidence between sanitary improvements (albeit limited) and improvements in the quality of the milk supply, and the timing of the typhoid decline (and also the decline in other diarrhoeal diseases) was not fortuitous. Thus the evidence from Glasgow supports McKeown's contention that the critical measures taken to control these diseases were sanitary and hygienic measures preventing the contamination of food and water supplies (3).

1. Until the cases were removed, the premises disinfected and certified free from infection after inspection by a medical officer.
2. Chalmers, op.cit. p.303.
3. McKeown, op.cit. p.68. There had probably been an improvement in food hygiene and quality by the end of the century. The various Sale of Food and Drugs Acts, 1875 to 1907 empowered staff of the sanitary department to prevent the sale of unwholesome food. In the absence of detailed evidence, however, it is difficult to assess efficacy of this legislation, for detailed discussion of changes in food marketing which may well have contributed to improved food hygiene, see above, p. 343 ff.

(iii) Tuberculosis

There are two kinds of tubercle bacillus which can cause tuberculosis in man - the human and the bovine types. The human bacillus is spread in droplets from cough spray of an open case of pulmonary tuberculosis and in dust. Infection of adults and children with this type leads to the development of pulmonary tuberculosis (T.B.) while in infants generalised, miliary T.B. is often the result. The bovine type of the disease is contracted by drinking milk from infected cows, and, rarely, by eating raw or imperfectly cooked infected meat. As milk is primarily consumed by children, bovine T.B. (usually manifest as abdominal T.B. (tabes mesenterica), infection of lymph glands of the neck (scrofula), and sometimes as tuberculous meningitis ⁽¹⁾) is usually a disease of childhood ⁽²⁾. As the two types of tuberculosis are spread by different routes (human T.B. is an air-borne infection and bovine T.B. is food borne) there will be two separate explanations for the decline of the disease.

Mortality from tuberculosis declined from the 1870's onwards, with a fall in pulmonary T.B. accounting for 26% of the decline in female mortality and 17% of the male mortality decline between the 1860's and the first decade of the twentieth century, both in Glasgow and nationally ⁽³⁾. The decline was most marked among those aged under 25; evidently fewer children were contracting the disease. The decline in mortality from other forms of T.B. (T.B. meningitis, tabes mesenterica, and scrofula ⁽⁴⁾) was most marked in children under five years and these diseases account

1. Tubercular meningitis is more commonly of human origin.
2. McKeown, op.cit. p.111, notes that mortality from abdominal T.B. in children under the age of 16 is a good index of the incidence of bovine T.B.
3. See above, p. 57 and Tables III, XI and XIII and Fig. 10.
4. See above, Table XIV.

for 9% of the male and 5% of the female mortality decline in Glasgow and 7 and 4% respectively of the national decline in mortality, much of the fall being due to the decline in T.B. meningitis (1).

Bovine Tuberculosis

The Glasgow public health authorities only began to take measures to prevent the sale of tuberculous milk and meat in the late 1880's, a few years after Koch had shown that tuberculosis was infectious and hence that it could be prevented. By this time it was widely known that the disease could be spread in the milk and meat from infected cattle (2) and in 1889 the sanitary department won a test case in the courts over the sale of a tuberculous bullock carcass which a sanitary inspector had condemned (3) as unfit for human consumption. Further prosecutions for the sale of unsound meat followed which, as the Sanitary Journal remarked, was in the general public interest and the interests of "the working classes more especially, to whom unscrupulous butchers ... are only too ready to dispose of unsound meat, disguised in the form of minced meat or sausages" (4). The Glasgow Police (Amendment) Act of the following year extended the local authority's power of seizure and prosecution and set up an inspection staff which watched railway stations, wharves etc. to ensure that unsound meat was not brought into the city illicitly. This system of inspection soon meant that Glasgow was no longer a market for "the farmer's casualties" and "the speculations of the carrion butcher" (5).

1. See above, Table XV, deaths from T.B. meningitis probably include a certain number from congenital hydrocephalus; T.B. was the most common cause of the condition however.
2. For example the Glasgow Herald carried a series of articles on the relationship between infected meat and milk and the dissemination of T.B. including one by Prof. Klein "On tuberculosis with regard to diseased meat and infectious disease", Sanitary Journal XIII (1889) 130, and J.McFadyean's article "Tuberculosis of the domesticated animals: its relationship to human phthisis", *ibid.* 165-7.
3. Under section 26 of the Public Health (Scotland) Act.
4. Sanitary Journal, XIII (1889), 244.
5. Russell (1905), *op.cit.* pp.603-8.

In the 1890's some influential members of the Glasgow medical profession began to press for action to be taken to control the spread of tuberculosis. In December 1891 the Medico-Chirurgical Society resolved to present a memorial to the city authorities calling attention to the fact that it was now recognised that tuberculosis was an infectious disease and that action should be taken to protect the community⁽¹⁾. This memorial was submitted to the committee of health in January 1892 and in December 1895 Dr. Russell's report on the subject⁽²⁾ was completed. A special sub-committee on the prevention of tuberculosis considered it and recommended that Russell's suggestions should be adopted. One of the principal proposals was that tuberculous cows should be eliminated from the byres of Glasgow and from the farms sending milk into the city and that a full time veterinary surgeon should be employed for this purpose⁽³⁾.

In 1897 a veterinary surgeon was duly appointed to supervise the milk supply of Glasgow and his task was made easier when, two years later, a bacteriologist who could test milk samples was engaged⁽⁴⁾. Legislation concerning milk production was being extended at this time; following the recommendations of the Royal Commission on Tuberculosis of 1898⁽⁵⁾ a Dairies, Cowsheds and Milkshops Order (1899) was issued in which the article which prohibited the sale of milk from diseased cattle was altered so as to include tuberculosis⁽⁶⁾. A further step in regula-

1. J.B. Russell, On the Prevention of Tuberculosis (Glasgow, 1896) p.59.
2. It is not clear why the report took so long to complete.
3. G.C.A. El 6A 23, p.896. When Russell had reported on ventilation in cow byres in 1892 he had pointed out that there "is only one thing more closely related to the dissemination of tubercle" than the ventilation of byres and that was the ventilation of houses. G.C.A. El 6A 19, p.286.
4. He was appointed in 1899 and also provided a service to local G.P.'s by testing sputum specimens for T.B. and other specimens for enteric fever or diphtheria, G.C.A. El 6A 27, p.390.
5. (P.P. 1898, XLIX).
6. Glaister, op.cit. p.420.

ting milk production was taken in 1900 when it was agreed that byres in the city could be licensed under the terms of the Cattle Sheds in Burghs Act only after a joint report of the medical officer of health, the sanitary inspector, and the veterinary surgeon (or any two of them) (1). Thus by the turn of the century efforts were being made to give Glasgow a safe milk supply and though the quality of milk probably improved it was many years before safe, pasteurised milk replaced untreated milk in Glasgow (2).

Pulmonary Tuberculosis

The reasons for the rapid decline in pulmonary T.B. which is spread from person to person differ from those responsible for the fall in bovine milk-borne T.B. Although mortality from respiratory T.B. had been falling consistently since the 1870's, the first specific steps to control the disease were only taken in Glasgow in the late 1890's after the acceptance of Dr. Russell's report on tuberculosis. Among its recommendations were that houses in which a death from pulmonary T.B. occurred should be disinfected (3), that the various municipal departments should take appropriate steps to reduce the spread of the disease (4), and that the local authority should attempt to educate the public about

1. G.C.A. E1 6A 27, p.453.
2. The attempts to improve the safety of milk supplies received a setback in 1901 when Koch announced at the London Congress on Tuberculosis that bovine T.B. bacilli were non-pathogenic to human beings. The Royal Commission on Tuberculosis (Human and Bovine) was set up to investigate this and it was established that Koch was mistaken. The M.O.H. of Glasgow used the Third (Interim) Report of the Royal Commission, which showed that bovine T.B. could be spread from cows with other forms of tuberculosis than tuberculosis of the udder, to add weight to his demand for more control of conditions on the rural dairy farms that supplied Glasgow with milk. M.L. Minutes of the Corporation of Glasgow, April 20 1909, p.1377.
3. Or, at the discretion of the M.O., where there was a case of pulmonary or other T.B.
4. For example, in 1906 spitting was prohibited on the Corporation trams (M.L. Minutes of the Corporation of Glasgow, 9 April 1906, p.1260), but it was 1910 before the committee on tramways recommended that a bye law should be made making it an offence to spit in tramcars (ibid. July 1910, p.1833).

consumption; how it was spread and how it could be limited. To this end the medical officer's report was published, primarily for the benefit of the medical profession, a synopsis of the report entitled "A Popular Exposition of the Modern Doctrine of Tuberculosis with Applications" was printed for the use of nurses, district visitors, and teachers, and a popular leaflet "Hints on the Prevention of Consumption" was prepared (1). By the end of 1896, 140,000 copies of the leaflet had been distributed throughout the city and a further 6,000 copies were sent out to be distributed by general practitioners, dispensaries, hospitals, and nursing institutions (2).

At the same time the local authority was making these efforts to inform the public about tuberculosis, members of the medical profession urged the Lord Provost to take further action on the matter (3). A year later in 1900 representatives of the Glasgow Medical Societies and the sub-committee on the prevention of tuberculosis discussed whether a branch of the National Association for the Prevention of Consumption should be formed locally (4). In March 1901 a public meeting of local worthies resolved to establish a branch of the association with the object of spreading information about tuberculosis and encouraging the establishment of sanatoria where consumptives could be isolated and

1. See Appendix IX.

2. G.C.A. E1 6A 24, p.380. In 1898 the Secretary of the Board of Guardians of the Jewish Poor of London asked permission to reprint and distribute copies of "Hints on the Prevention of Consumption" among London Jews and they bought 200 copies of the "Popular Exposition" for the use of their visitors, G.C.A. E1 6A 25, p.634 and see E1 6A 26, p.214.

3. G.C.A. E1 6A 27, pp.455-6.

4. M.L. Minutes of the Corporation of Glasgow, Dec. 1900, p.240.

treated (1). This meeting resulted in the growth of sanatorium provision; first Bellefield sanatorium was established near Lanark with 30 (later 52) beds for men of the "commercial and artisan classes", supported by contributions raised by the Association's Ladies Auxiliary (2) and a large capital grant from Glasgow Corporation (3). By 1907 there were as well beds for the treatment of pulmonary tuberculosis at the Bridge of Weir Consumptive Homes and (for advanced cases) at the Lanfine Home of Incurables.

Unfortunately the rise in sanatorium provision was accompanied by a fall in the number of consumptive patients being treated in the voluntary hospitals, as Table LXV shows.

Although the number of consumptives treated annually in the city infirmaries declined significantly from the 1880's, the number treated in the poor law hospitals appears to have been growing. But treatment in the latter was, of course, confined to paupers and so by the end of the period under consideration there had been little improvement in the institutional provision for non-pauper consumptives. Moreover as people were only prepared to accept poor law care when they were too ill to work

1. Glasgow Herald, 23 March 1901. The National Association for the Prevention of Consumption and other forms of Tuberculosis was founded in June 1898 by members of the medical profession, its first president was the Prince of Wales. Its aims were to influence public opinion through congresses and public lectures, found sanatoria, and encourage research. From 1899 the Association published the journal Tuberculosis, see National Association for the Prevention of Tuberculosis, a Historical Sketch, anon. (1926).
2. Glasgow Herald, 24 Jan. 1905.
3. Chalmers, op.cit. p.102. The corporation gave £5,500 to the sanatorium and it also gave financial help to the Quarrier's Sanatorium at Bridge of Weir and to the Association for the Relief of Incurables for care of incurable consumptives at the Lanfine Home for Incurables, M.L. Minutes of the Corporation of Glasgow, Dec. 1910, p.459 and 1911, p.1949.

Table LXV
(1)

Numbers of consumptives treated in Glasgow hospitals and sanatoria 1880-4 and 1907

	Institutions	Average annual number treated	
		1880-4	1907
Voluntary Hospitals	Royal Infirmary	370	74
	Western Infirmary	234	42
	Victoria Infirmary	-	50
Poor Law Hospitals	Parish of Glasgow		
	City Parish	-	{ 1488
	Barony Parish	77	
	Parish of Govan	35	375
Sanatoria	Bellefield (Glasgow patients only)	-	47
	Bridge of Weir (Glasgow patients only)	-	119
	Lanfine (Glasgow patients only)	-	13

1. Source, Report of the M.O.H. of the City of Glasgow, 1908, p.114, in the absence of data on City parish in the 1880's no totals have been given as they would not be comparable with data for 1907, and see Table XXXVIII. After a meeting at the Municipal Chambers in 1904 Dr. Robertson reported to a committee at the Victoria Infirmary that the infirmaries "are not inclined to do any more in the direction of supplying accommodation for consumptives" as they were already doing as much as could be expected. GHB 9, 1903-6, p.20.

many were in an advanced stage of the disease when admitted ⁽¹⁾. The poor law hospitals were beginning to provide special wards for consumptives by the turn of the century. In 1899 the general superintendent of poorhouses, Barclay, noted that no Scottish poorhouses provided special accommodation for the isolation and treatment of consumptives ⁽²⁾ and later some of the earliest sanatorium wards (and chalets for the new open air treatment) were built at the Parish of Glasgow hospital at Stobhill ⁽³⁾. In addition some wards of Govan parish's hospital at Merryflatts were set aside for the treatment of consumptives. By 1908 there were 416 beds specifically for consumptives in the poor law hospitals of Glasgow and 626 with voluntary sanatoria in the district. Clearly more sanatoria were required to meet the growing demand for hospital treatment for consumptives and to provide for those who did not qualify for treatment by the poor law authorities ⁽⁴⁾.

The first direct steps the Glasgow public health authorities took to control the spread of pulmonary tuberculosis were concerned with disinfecting the homes of consumptives and advising on hygiene. The authorities needed to know the whereabouts of those with pulmonary T.B. and so in 1899 a system of voluntary notification was started. The public dispensaries in the city (poor law, infirmary dispensaries, and others) were invited to supply the M.O.H. each week with the names and

1. For an experimental period of six months in 1907 the Baird Street Reception House was used to accommodate bed-ridden terminal consumptives; most were married women who, as dependents of able-bodied bread winners, were not entitled to parochial relief. Report of the M.O.H. of the City of Glasgow, 1907, pp.104-6.
2. 5th Ann. Rep. L.G.B. (P.P. 1900, XXXVI).
3. 11th Ann. Rep. L.G.B. (P.P. 1906, XXXVII).
4. Report of the M.O.H. of the City of Glasgow, 1908, pp.109-22. The existing hospital accommodation for consumptives was not solely for the use of Glasgow residents.

addresses of new consumptive patients. In 1903 the M.O.H. considered whether the system of notification should be extended but recommended against this as he believed that the decline in mortality from consumption that had taken place hitherto had occurred independently of medical and public health measures ⁽¹⁾. However, local opinion in favour of making consumption a notifiable infectious disease was growing. In 1904 the Glasgow Trades Council resolved that, as consumption was infectious and curable "the Committee of Health of the Corporation should take steps to have it properly treated under their control ..." ⁽²⁾. In May of the same year the Langside Ward Committee resolved that consumption should be made notifiable ⁽³⁾, a resolution that was supported by the Mile End Ward Committee ⁽⁴⁾. In 1906 the Parish Council of Glasgow added its voice to the demand that pulmonary tuberculosis be made a statutory notifiable disease and Govanhill Municipal Ward Committee passed a resolution to the same effect ⁽⁵⁾. In June of the same year the Glasgow United Trades Council sent a deputation to the Health Committee urging that consumption should be made a notifiable disease so that its spread could be controlled ⁽⁶⁾. The matter was resolved in March of 1906 when the L.G.B. issued a circular in which it stated that pulmonary tuberculosis was now an infectious disease under the Public Health (Scotland) Act, 1897, and, as with other infectious diseases, control measures must be taken. Local authorities could now

1. An enquiry into the mortality trend in consumption in the past 30 years had come to this conclusion and Chalmers believed that further improvements in mortality would follow changes in environmental conditions, Chalmers, op.cit. pp.96-8.
2. M.L. Minutes of the Corporation of Glasgow, 24 Feb. 1904, p.575.
3. *ibid.* 18 May 1904, p.981.
4. *ibid.* 15 June 1904, p.1124.
5. *ibid.* 1906, p.1492.
6. *ibid.* June 1906, p.1784.

provide sanatoria, either by themselves or together with voluntary organisations, and they could now add pulmonary phthisis to the list of diseases notifiable under the Infectious Diseases (Notification) Act, 1889 ⁽¹⁾. In October of the same year Glasgow Corporation resolved that pulmonary T.B. should be made notifiable, this resolution was confirmed in the autumn of 1909 ⁽²⁾, and consumption became a notifiable disease in Glasgow from January 1910 ⁽³⁾. This measure facilitated the supervision, isolation, and treatment of cases of the disease and it was made mandatory throughout Scotland under the Public Health (Pulmonary T.B.) Regulations (Scotland) issued by the L.G.B. in 1912.

At the same time the Glasgow authorities started a chain of dispensaries, first held in the dispensaries of the Glasgow Parish Council, to provide treatment for consumptives ⁽⁴⁾. The scheme was supervised by a junior medical officer, Dr. A. McGregor ⁽⁵⁾, assisted by four part-time dispensary doctors ⁽⁶⁾ and four nurses who visited patients in their own homes and advised on matters of hygiene and diet ⁽⁷⁾.

The provision of sanatoria on a large scale where consumptives could be segregated and treated came only after 1911. Under the National

1. 12th Ann. Rep. L.G.B.... op.cit.
2. M.L. Minutes of the Corp.... 1 Sept. 1909, p.2367.
3. Initially for a period of three years.
4. In March 1909 the sub-committee for the prevention of tuberculosis met representatives of the parish councils, the National Association for the Prevention of Consumption, Quarrier's Homes, Lanfine Home, and the Bellefield Sanatorium and it was agreed that the staff of the local authority should use the Glasgow Parish Council's dispensaries on certain days for the treatment of consumptives. Minutes of Glasgow Corp.... March 1909, p.1697. The first dispensary for the treatment of pulmonary T.B. had been opened in the Sanitary Chambers in 1906 and was run by the National Association for the Prevention of Consumption, Chalmers, op.cit. p.102.
5. Later Sir A. McGregor, M.O.H. of Glasgow 1925-46, McGregor, op.cit.
6. M.L. Minutes of Corporation of Glasgow, 21 Jan. 1910, p.656.
7. They made use of charitable funds to buy extra food for consumptives when this was required, McGregor, op.cit. p.89.

Insurance Act of that year local authorities were obliged to provide sanatoria as well as other forms of treatment for those with tuberculosis ⁽¹⁾. In Glasgow in November of 1911 it was recommended that the hospital which the Corporation was building on the Robroyston estate should be made available for the treatment of consumptives and that consultations should take place with the School Boards and Parish Councils about the provision of country homes and open-air schools for pre-tubercular children ⁽²⁾. With the financial support that was available after 1911 the domiciliary services for treatment of tuberculosis in the city could be expanded and beds for consumptives provided at Robroyston, Ruchill, and after the first world war at Mearnskirck sanatorium ⁽³⁾.

Evidently mortality from pulmonary T.B. had been declining long ⁽⁴⁾ before the direct measures against the disease (described above) began to be taken. Adequate institutional provision for the treatment of pulmonary T.B. came only after 1911, well after the consistent downward trend in mortality from the disease had been established. In any case the medical treatment available at this time was of little value, there is no evidence that the new open-air treatment for consumption was effective and the main value of sanatoria was probably in segregating infectious cases from the rest of the population. An effective treatment for tuberculosis came only with the introduction of streptomycin in 1947. The explanation for the fall in mortality in Glasgow from pulmonary T.B. at this time cannot lie in contemporary medical care.

1. Singer & Underwood, op.cit. p.229. The Finance Act of the same year set aside £158,000 for the provision of sanatoria and other institutions in Scotland and there was also provision for the maintenance of these hospitals, M.L. Minutes Corp.... 11 Dec. 1912, p.438.
2. ibid. 29 Nov. 1911, p.319.
3. Chalmers, op.cit. p.116 ff.
4. See above, p. 57 on chronology of decline of pulmonary T.B.

The incidence of the disease, as McKeown points out, is related to three factors, the number of infected cases in a population, the level of crowding in the home or workplace ⁽¹⁾ which determines the amount of exposure that an individual will have to infectious cases, and thirdly the state of nutrition of a population since the malnourished are more susceptible to infectious diseases like tuberculosis than the well fed ⁽²⁾. There is evidence that in Glasgow the death rate from pulmonary T.B. was related directly to overcrowding with mortality being higher in districts with overcrowded houses than in less crowded districts ⁽³⁾. Between 1881-90 and 1890-5 the decline in pulmonary tuberculosis mortality was greatest in districts where there had been a decrease in overcrowding, as measured by room density ⁽⁴⁾. The decline of overcrowding in Glasgow has already been discussed ⁽⁵⁾ and it seems very likely, therefore, that it was a factor contributing to the fall in mortality from this cause. The other factor is the standard of nutrition. There is slight evidence that the standard of living and of food consumption was rising in late nineteenth century Glasgow ⁽⁶⁾ and this was almost certainly an important factor in relation to the decline of tuberculosis mortality. In 1903 the M.O.H. had attributed the decline in consumption in the past thirty years to the reduction in overcrowding and "an increase in wages and in the purchasing power of money; and an improvement in the standard of living" ⁽⁷⁾. This supports McKeown's

1. McKeown, op.cit. p.118.

2. *ibid.* p.136.

3. A.K. Chalmers, The Distribution of Tuberculous Disease in Glasgow (Glasgow, n.d.), p.21.

4. *ibid.* p.22.

5. See above, p.323 ff.

6. See above, p.333 ff.

7. Annual Report of the M.O. of the City of Glasgow, 1903, p.79.

view that the major factor accounting for the fall in mortality from tuberculosis before the twentieth century was improved nutrition ⁽¹⁾. As has been shown the public health measures to improve the safety of milk and other food were only just coming into force and so can have contributed little to the fall in mortality from bovine T.B.: the same is true of the public health measures to control pulmonary T.B. ⁽²⁾.

1. McKeown, op.cit. p.141, he holds that this was also an important factor in the decline of other infectious diseases.
2. These measures were beginning to become more effective right at the end of our period.

(iv) Respiratory Diseases (1)

In Glasgow 19% of the decline in mortality that took place between the 1860's and the first decade of the twentieth century is accounted for by a decline in the number of deaths due to respiratory diseases which fell from a level that was twice as high in the city as it was nationally (2). The decline was greatest in the younger age groups, particularly among children aged 1-4 years; mortality in this age group fell by a factor of almost three. Not until the 1890's did the respiratory disease death rate among the over 25's begin to fall. The decline in mortality from this cause was much less marked nationally but, as Table IX shows, these diseases were relatively less important at all ages over the whole of Scotland than they were in Glasgow. The pattern in England and Wales seems to have been different with mortality from respiratory diseases increasing between 1848-51 and 1901 and only falling thereafter (3).

The reasons for the exceedingly high level of respiratory diseases in Glasgow and the disproportionate contribution that the decline in mortality from these conditions made to the overall decline in the death rate are complicated. There are now known to be at least 15 distinct clinical respiratory syndromes which often merge into each other, and over 150 aetiological agents (4) and so the relationship between the incidence of these

1. These include bronchitis, pneumonia, bronchopneumonia, pleurisy etc.
2. See above, p.55 and Tables VIII and IX.
3. McKeown, op.cit. pp.57 and 93.
4. A.B. Christie, Infectious Diseases: Epidemiology and Clinical Practice (1974) pp.341-2. Diagnosis of the aetiological agent in cases of respiratory diseases is almost impossible without laboratory investigations. The importance of such organisms as influenza virus (first isolated in 1937) and the pneumococcus in the causation of the respiratory diseases under consideration here are thus impossible to assess, as such investigations were either not possible or were done on only a tiny minority of cases, and that only in the last two decades of the period. It should also be noted that respiratory disease is a common terminal event in illnesses other than those of the lungs. The fall in the death rate from respiratory diseases in Glasgow in young children cannot be explained by changes in diagnosis as deaths of children aged 1-4 from all causes declined steeply (see Fig.3). The fall in respiratory disease mortality in adults may in part be explained by changes in diagnosis as more cancer and cardio-vascular disease was certified.

conditions in the population and the environment is complex and extremely difficult to analyse. However there is a direct relationship between such environmental conditions as air pollution and extreme cold and mortality from respiratory diseases, a relationship which was well known in the nineteenth century.

Air pollution had been a growing problem in Glasgow since the early years of industrialisation. As early as 1827 a local Act had been passed ⁽¹⁾ which specified the heights of factory chimneys, and laid down that factory furnaces should be properly constructed and fuelled. However smoke continued to be a problem. In 1850 a Committee on Smoke Nuisance issued a circular reminding factory owners of the terms of the 1827 Act ⁽²⁾ and a temporary inspector was appointed to examine the city's factory furnaces ⁽³⁾. But in spite of prosecutions of the worst offenders the Act, and subsequent legislation on the matter passed in the 1850's and '60's, remained largely ineffective because of the intransigence of the factory owners. Not until the 1890's was effective legislation passed and even then smoke pollution continued to be a problem. In 1898 the Health Committee took over the administration of measures to deal with this matter from the Magistrate's Committee ⁽⁴⁾ and two (later four) engineers were appointed as Smoke Inspectors to enforce the sections of the Public Health (Scotland) Act, 1897 and the Glasgow Police (Further Powers) Act of 1893 which related to the control of industrial smoke.

1. 7 & 8 Geo. IV. c.23.
2. G.C.A. DTC 14 2 1, Report by the Committee on the Nuisance from Smoke to the Board of Police, 4 April 1864.
3. T.S. Wilson, "Clearing the air", in J. Lenihan & W.W. Fletcher, eds. Health and the Environment (1976), p.139. A speaker at the British Institute of Public Health conference in Glasgow in 1896 noted that air pollution was not only harmful to health but it also increased social divisions; "because the artisans were compelled to live near their work, while the employer could go away to the country ..."
Glasgow Herald, July 25 1896.
4. G.C.A. El 6A 25, p.1070.

Factory owners were pressed to improve their furnaces and their methods of stoking in order to reduce the amount of black smoke that was produced and those who continued to offend were prosecuted. The sanitary inspector reported that conditions were improving despite the fact that in 1903 it was estimated that the two steel works within the city alone were throwing 98 cwt of solid matter into the atmosphere every 24 hours in their smoke ⁽¹⁾ and the quarter of a million domestic coal fires in the city remained unchecked ⁽²⁾. These domestic coal fires produced much of the smoke that hung over Glasgow as was demonstrated on the day of the Annual Autumn Holiday in 1896. The factories were closed but the city was not free from smoke, from Queen's Park on the south side which was in bright sunshine nothing was visible across the river except the top quarter of Tennant's Stalk ⁽³⁾. Smoke polluted air was to remain a serious problem in Glasgow until at least the second half of the present century.

The general annual winter increase in deaths from respiratory diseases has been attributed to the greater domestic overcrowding and poorer ventilation that occurs in the winter months, the greater atmospheric pollution from domestic fires at this time of year, and perhaps, in addition, cold may increase the chance of lung infection ⁽⁴⁾. It is well known that severe fog and smoke pollution lead to a sudden rise in deaths from respiratory diseases, as evidenced by the catastrophic London fog of 1952 ⁽⁵⁾ and there were similar incidents in Glasgow in the nineteenth century. On these occasions temperatures were very low,

1. 34th Annual Report of the Operations of the Sanitary Department, 1903, p.17.
2. 39th Ann. Rep.... Sanitary Dept., 1908, p.48. It was hoped that gas would soon replace the domestic coal fire, 35th Ann. Rep.... Sanitary Dept., 1904, p.26.
3. Glasgow Herald, Oct. 3 1896.
4. J. Crofton & A. Douglas, Respiratory Diseases (Oxford, 1969), p.116.
5. Wilson, op.cit. pp.150-3.

hence air pollution from domestic coal fires would have been particularly and in the stagnant, freezing air a pall of smokey fog enveloped the city. In February 1865, for example, and in the spring of 1869 there were weeks of extreme cold and high death rates ⁽¹⁾. The winter of 1874-5 was particularly severe and in early January the death rate reached 54/1,000, 43% of which was from respiratory disease. As the medical officer of health noted there was little the public health authorities could do, "no immediate Action within the ordinary scope of the (Sanitary) Department will mitigate this mortality. It is coincident with and caused by the Action of cold, and an irrespirable (sic) fog on the mass of the population" ⁽²⁾. Again in 1882, after a fortnight of extreme cold and rising mortality Dr. Russell noted, "the phenomenal and startling death rates of Glasgow have never risen from Epidemic Disease, at least not during the last twenty years, but from cold, and that the very highest arose from the accumulation over us of our smoke in the foggy calm of continued frost" ⁽³⁾.

In February 1895 Russell again commented on the rising mortality (most marked, as usual, among infants and the aged) after three weeks of freezing temperatures and, "dense fog, which was only removed from time to time by a bitter east wind. These are conditions which invariably run up the death rate of Glasgow enormously" ⁽⁴⁾. In such circumstances

1. The Registrar General often refers in his reports to the association between high death rates from respiratory diseases (particularly bronchitis and pneumonia) and extremely cold weather; "Just in proportion as the cold increases in intensity, so do the inflammatory diseases of the respiratory organs increase and prove fatal; and should any month out of its usual course show a lower temperature, and have more biting northerly and easterly winds, that month will have a higher mortality of the respiratory organs". Supplement to the Registrar General's reports on Births, Marriages and Deaths in Scotland during the 10 years 1861-70 (P.P. 1874), p.63.
2. G.C.A. E1 20 2, p.158.
3. G.C.A. E1 20 7, p.147.
4. G.C.A. E1 6A 21, p.305.

there was little the public health authorities could do; what was needed was "the warmth of food, fire and clothing" (1). As the medical officer had observed in similar circumstances a decade earlier in January 1881, "Sanitary inspectors can do nothing to keep down a death rate such as the present unless they carry about with them food, and especially bedding and fuel, in their daily rounds" (2).

Evidently lack of such domestic necessities as adequate clothing, heating and food was common in Glasgow. Perhaps levels of domestic comfort improved at the end of the nineteenth century as standards of living rose and this might have contributed to the decline in mortality from respiratory diseases, particularly among the young who are very susceptible to the effects of hunger and cold. Another contributory factor was probably the decline in domestic overcrowding that had occurred by the first decade of the twentieth century. But as air pollution remained bad throughout the period it cannot be related to the decline in mortality from this cause.

The fall in mortality from respiratory diseases was much more marked in Glasgow than it was nationally, as Table III shows. It is difficult to account for this unless environmental conditions were so much worse in the city than in Scotland as a whole. An improvement in living conditions in Glasgow might therefore have had a much greater impact on mortality. Respiratory disease mortality was still higher in Glasgow than it was nationally at the end of the period and the differential, albeit reduced, has remained (3). Clearly urban environmental conditions are inimical to healthy lungs.

1. G.C.A. E1 6A 21, p.305.
2. G.C.A. E1 20 6, p.4.
3. Wilson, op.cit. p.152.

(v) Scarlet Fever

In mid-nineteenth century Glasgow scarlet fever was one of the most deadly infectious diseases in children. From the 1870's mortality from this cause fell both in Glasgow and throughout the country ⁽¹⁾. The fall in mortality from this cause accounts for some 10% of the mortality decline in Glasgow and some 15% of the national mortality decline between the 1860's and the first decade of the twentieth century ⁽²⁾. The disease is caused by a haemolytic streptococcus and infection is usually spread from person to person. The bacterium can also be spread by unpasteurized milk infected with organisms originating from the throat of a human carrier or by the milk of cows with streptococcal mastitis ⁽³⁾.

It is known that the virulence of the haemolytic streptococcus changes periodically and this accounts for the cycles of severity and mildness of scarlet fever that have taken place since the eighteenth century. The disease was serious in the late eighteenth century ⁽⁴⁾ but by the early years of the nineteenth it had become a mild condition. It began to increase in virulence in the 1830's and between 1840 and 1880 there were severe and frequent epidemics which killed many children, two-thirds of them before they reached the age of five ⁽⁵⁾. The disease reached its peak in 1863 ⁽⁶⁾ but declined in virulence from the 1880's.

1. See Figs. 6a and 6b.

2. See above, Table III.

3. Sometimes caused by streptococcus A from human carriers.

There were several outbreaks of milk borne scarlet fever in Glasgow; in 1888 there were four such outbreaks reported and there were others in the 1890's. See, for example, G.C.A. E1 6A 16, p.206, and J.B. Russell, Report on the outbreak of Scarlet Fever in Glasgow in connection with an epidemic that erupted in milch cows at Jaapston (Glasgow, 1893) & A.B. Christie, op.cit. p.1015.

4. McKeown, op.cit. pp.82-3.

5. Rosen, op.cit. p.652.

6. McKeown, op.cit. p.83, and see Fig. 6a; scarlet fever mortality reached a peak in Glasgow in the same year.

It was still an important cause of child mortality in the early twentieth century but continued to decline in virulence thereafter. Today it is a very mild condition (1).

The changes in the virulence of scarlet fever were recognised in the nineteenth century. The English Registrar General remarked in 1892 that in recent years the disease had been comparatively mild. "That the virulence of this disease is very different in different outbreaks is well known", he noted, "There are times when it is scarcely more than a trifling disorder; there are other times when it becomes a deadly pestilence" (2). In Glasgow in 1893 Dr. Russell commented that in spite of the size of scarlet fever epidemics in the previous three years "we have passed through them with a loss of life considerably below the average of the decade 1881-90; while if we go further back we find years of mortality from Scarlet Fever amounting to three, four, six or eight times that of 1893" (3).

From the 1870's an increasing number of scarlet fever cases were treated in hospital (4) and the percentage of deaths from the disease in Glasgow that took place in hospital rose from 4% in the early 1870's to 74% in the five years to 1910 (5). In 1891 it was estimated that 62% of notified scarlet fever cases were treated in hospital, a figure that had risen to 91% in 1908 (6). Apart from providing hospital treatment in the City Fever Hospitals the public health authorities took various

1. In 1965, for example, there were 25,000 cases and no deaths.
2. 54th Annual Report of the Registrar General of Births, Marriages and Deaths in England (P.P. 1892, XXIV), p.xix. The case mortality in the M.A.B. hospitals had fallen from 12.88/100 cases in 1874-8 to 8.56/100 cases in 1887-91.
3. G.C.A. E1 6A 21, p.172.
4. See above, Table XLVI.
5. See above, Table XLVIII.
6. Report of the M.O. of the City of Glasgow 1910, p.42, obviously some cases were not being notified and hospitalized.

other measures to combat the disease. These included excluding infectious children from school ⁽¹⁾ and tracing infectious children to their homes where the disinfection of the house would be arranged and the parents provided with copies of two informative pamphlets on the matter, the "Law about Infectious Diseases" and the "Prevention of Scarlet Fever" ⁽²⁾.

It is doubtful, however, whether these measures influenced the downward trend in mortality from scarlet fever. The virulence of the disease was waning at the same time as hospitalization of scarlet fever cases and other public health measures were being introduced in Glasgow. Until the mid-1930's there was no effective treatment for the disease ⁽³⁾ and yet case mortality in the Glasgow City Fever Hospitals fell from 15% in the early 1870's to 4% in the years 1905-9 ⁽⁴⁾. Evidently scarlet fever was no longer such a severe disease.

1. This became easier from 1890 onwards when the Infectious Disease (Notification) Act was adopted in Glasgow. The other diseases which were made notifiable were smallpox, cholera, diphtheria, membranous croup, erisipelas, typhus, and typhoid, see J.B. Russell, Memorandum on the Infectious Diseases Notification Act, 1889, G.C.A. E1 6A 17, p.454.
2. The pamphlet on scarlet fever was first issued in 1875, G.C.A. E1 20 2 p.185, and see E1 6A 21, p.842, and Appendix IX.
3. McKeown, op.cit. p.97.
4. See above, Table XLVI.

(vi) Whooping Cough

Whooping cough is an infectious disease of childhood that occurs in epidemics in large cities every few years, particularly in winter and spring; it is, however, never entirely absent. The disease itself is a serious, debilitating condition of the lungs, and complications such as bronchitis and pneumonia are common and often fatal especially where environmental conditions are poor ⁽¹⁾. It is spread by droplet infection, often by close contact within the family ⁽²⁾.

In nineteenth century Glasgow whooping cough was one of the most significant causes of death in the city ⁽³⁾, only tuberculosis and the respiratory diseases being more important killers. As Dr. Russell noted in 1878, "It is perhaps the most uniformly and unremittingly fatal of all zymotic (i.e. infectious) diseases in Glasgow ..." ⁽⁴⁾. It was particularly dangerous to the very young with many of the deaths occurring in children under the age of one year and most in children under five. If the mortality rates from whooping cough in children under ten years in five yearly periods in the 1850's, 1890's, and the first decade of the twentieth century are compared it will be seen that mortality from this cause had fallen by over 50% in boys and somewhat less in girls ⁽⁵⁾.

Table LXVI ⁽⁶⁾Whooping cough deaths under 10 years in Glasgow

Year	Deaths/10,000 living	
	male	female
1856-60	69.9	85.0
1891-5	35.3	42.4
1896-1900	39.6	44.6
1906-10	31.6	35.7

1. Topley & Wilson, eds. op.cit. p.2152.
2. McKeown, op.cit. p.115.
3. See Table III.
4. G.C.A. El 20 4, p.60.
5. For reasons which are unclear female death rates from whooping cough are always higher than the male ones.
6. Calculated from Registrar General's data.

The fall in mortality from whooping cough accounts for some 6-7% of the overall mortality decline in Glasgow between the 1860's and the first decade of the twentieth century and for 3-4% of the national mortality decline ⁽¹⁾. Whooping cough began to decline in the 1880's, as Fig. 11 shows.

Like other infectious diseases that are spread in air-borne droplets, it is particularly difficult to control the dissemination of whooping cough. As Dr. Russell noted, "There is probably no disease which certainly spreads by infection or contagion to check which, in a Sanitary sense, less can be done ... It lasts on an average from 8 to 10 weeks, it begins and ends with symptoms not obviously different from an ordinary cold; it leaves children who are able to walk free to go about between paroxysms just as usual ..." ⁽²⁾.

The principal measures taken by the Glasgow public health authorities to deal with the disease were the exclusion of infectious children from school ⁽³⁾ and the provision of hospital care. An increasing number of children with whooping cough began to be treated in the city's fever hospitals (Table XLVI) but these were only a relatively small proportion of the total cases occurring in Glasgow. As Table XLVII shows even by the first decade of the twentieth century only 24% of whooping cough deaths occurred in hospital which indicates that most cases did not receive hospital treatment. Children with the disease may have received better care in hospital than they would have done in their own cold, overcrowded homes but there was no effective treatment for the disease at this

1. See above, Table III.

2. G.C.A. E1 20 4, p.102.

3. G.C.A. DTC 14 2 6, J.B. Russell Memo. on Hospital Accommodation for Infectious Diseases in Glasgow, (Glasgow, 1881), p.10.

time (1). As Table XLVI shows the case mortality rate at Belvidere hospital actually increased. Clearly the decline in whooping cough mortality can have had nothing to do with specific medical treatment.

It was known that whooping cough was particularly severe among the children of the poor. As Dr. Russell pointed out "Whooping cough is very rarely fatal among the classes who have comfortable houses.

Pure air at a warm temperature in great measure deprives the disease of its fatal tendencies" (2).

It was aggravated by cold (3). When mortality from respiratory diseases increased so did mortality from "diseases which tend to a fatal issue by complications of the lungs, such as Measles and Whooping Cough ... (4).

It is now known that malnourished and poorly fed children are particularly susceptible to infectious diseases and that they suffer the illnesses (5) (and no doubt their sequelae) more severely than the well fed. It seems likely, therefore, that the high mortality from whooping cough in poor families is explained in part by poor nutrition and lack of resistance to infection and in part by the overcrowding which increased the chance of infection. The decline of mortality from the disease in the second half of the nineteenth century was probably due, therefore, to improvements in nutrition and perhaps also to environmental changes that took place at this time (6).

1. McKeown, op.cit. p.95.
2. G.C.A. E1 20 2, p.381.
3. G.C.A. E1 6A 9, p.2626.
4. G.C.A. E1 6A 25, p.430.
5. McKeown, op.cit. p.135.
6. See above, Chapter 10.

(vii) Measles

Measles is a highly infectious disease that is endemic throughout the world. It is chiefly a disease of childhood and tends to occur, in urban areas, in two yearly cycles with epidemics breaking out when there are a sufficient number of susceptible ⁽¹⁾ children in the population. The disease itself is mild. It is the complications, usually of the respiratory system, that are dangerous and often fatal.

As Table III shows measles was a much greater cause of mortality in Glasgow than it was nationally. It declined little in the period under consideration ⁽²⁾ being responsible for only under 2% of the fall in the death rate in Glasgow between the 1860's and the first ten years of the twentieth century and some 1% throughout Scotland. If the mortality rates from measles of children under ten years of age in Glasgow are compared for five yearly periods in the 1850's, the 1890's and the first decade of this century it will be seen that the fall in the mortality of children from this cause was also small.

Table LXVII ⁽³⁾Measles death rates of children under 10 years in Glasgow

Year	Deaths/100,000 living	
	male	female
1856-60	40.4	37.0
1891-5	31.4	28.5
1896-1900	38.2	37.4
1906-10	31.1	28.4

Measles was a very dangerous disease of childhood in the nineteenth century and of this the Glasgow public health authorities were only too

1. i.e. of those who had not had the disease.
2. See Fig. 13.
3. Calculated from Registrar General's data.

well aware. In 1871 it caused the deaths of 900 children in the city; their average age was only $2\frac{3}{4}$ years. As Dr. Russell noted, "From the rapidity with which Measles covers large areas it may kill a large number of children in a short space of time, and yet leave on the minds of isolated observers an impression of extreme innocence and innocuousness" (1).

In 1881 Russell again stressed the danger of the disease. "Parents who may be disposed to sniff at measles as a trifling disease", he remarked, "ought to remember that it has been known to kill in Glasgow as many as 890 children in one year, and that it is more fatal year to year than all the fevers" (2). As he pointed out there was a tendency to make light of the disease but, "it so rapidly covers an enormous area, producing an immense crop of cases, that a small mortality in proportion to the cases accumulates a large aggregate". Any one doctor or parent saw only part of an epidemic yet there was no epidemic disease "capable of so enormously adding to death rates as Measles, yet there is no disease of the individual case of which so little care is taken ..." (3).

Dr. Russell was anxious that measles should be seen as a real danger to young children so that parents would take steps to protect their offspring from contact with infectious cases. In 1889 he was reporting that the working classes were beginning to take measles more seriously. "Some years ago Measles caused no concern among them. Now every day brings information as to Measles; requests for assistance; protests from neighbours as to carelessness in using common washing-houses &c...." he noted (4).

1. G.C.A. E1 20 5, p.172.
2. G.C.A. E1 20 6, p.242.
3. G.C.A. E1 20 7, pp.272-3. Dr. Russell pointed out that in 1882 the measles mortality rate in Edinburgh had been estimated to be 1 in 50 cases.
4. G.C.A. E1 6A 17, p.142.

In order to educate the public about the disease he drafted a popular leaflet entitled "Hints about the Prevention of Measles" which was distributed throughout the city ⁽¹⁾. This stressed how infectious and dangerous measles was, that infants in particular ought to be kept away from children with the disease, and that children with measles ought to be isolated and kept warm ⁽²⁾. He noted in the leaflet that the disease tended to kill "by producing inflammations of the lungs", and on another occasion he remarked that measles was most dangerous in the winter "because of the tendency of the disease to give rise to lung complications" ⁽³⁾.

The principal measures taken by the Glasgow public health authorities to combat measles were quarantine of infectious children, the exclusion from school of all cases and contacts and, where necessary, the closure of schools. To this end (from the 1870's) the school authorities informed the sanitary department if children were absent from school with infections ⁽⁴⁾ so that those with measles could be excluded until they were no longer infectious. For as Dr. Russell observed, schools were the chief means of spreading measles and "Not only should the children be retained from School until thoroughly better but children of the same family should be withdrawn..." ⁽⁵⁾. This view was endorsed by the assistant M.O.H. Dr. A.K. Chalmers in his Memorandum on Measles in 1897

1. G.C.A. El 6A 24, p.196.
2. See below Appendix IX.
3. M.L. Minutes of the Corporation of Glasgow, Nov. 1901, p.251.
4. G.C.A. El 6A 24, p.643.
5. G.C.A. El 20 4, p.51. In 1892 there was a severe outbreak of measles which led the authorities to close the infant department of one school in order to reduce infection; (G.C.A. El 6A 19, p.502) the staff of the sanitary department were so overwhelmed that Commissionaires had to be employed to register the cases of measles and issue notices barring the children from school (ibid. p.81).

in which he suggested that the only way to stem measles epidemics was to exclude cases and contacts from school at the earliest opportunity. Hospital treatment did nothing to halt outbreaks as cases were infectious before the characteristic rash appeared, and was diagnosed. He recommended that more epidemic inspectors should be employed to seek out the tenements where measles had broken out and ensure that all the children living there were kept from school. Closer liaison with city schools was also recommended to ensure that the sanitary department received early information of pupils who were absent with the disease⁽¹⁾.

Nevertheless, despite these efforts, measles mortality fell only slightly. This is not surprising as it is now known that even full quarantine of all measles contacts and their exclusion from school for the entire incubation period of the disease has no effect on the progress of an epidemic⁽²⁾. The slight downward trend in measles mortality can have had little to do with the efforts of the public health authorities to exclude measles from Glasgow schools.

By the twentieth century a growing number of children with measles were being treated in hospital⁽³⁾. In the five years 1905-9 24% of measles deaths occurred in hospital which indicates that a significant proportion of cases were now receiving hospital care⁽⁴⁾. There was, however, no treatment for the disease at this time and in 1908 it was reported that the mortality rate of cases that were treated in hospital was about twice that of cases treated at home⁽⁵⁾. Hospital

1. G.C.A. E1 6A 24, pp.641-4. Under the Scotch Education Code of 1897 provision was made for parts of schools to be closed on the advice of a M.O.H. without the School Board losing its grant as hitherto and on measles see Report of the M.O. to the L.G.B. (P.P. 1894-5, LI).
2. A.B. Christie, op.cit. p.397.
3. See Table XLVI; the number increased with the opening of Ruchill hospital.
4. See Table XLVIII.
5. Report of the M.O. of the City of Glasgow, 1908, p.96. On overcrowding at Ruchill see M.L. Minutes of the Corporation of Glasgow, Jan. 1908, pp.977-84.

treatment of measles was obviously not very effective at this time.

Children of all social classes contract measles ⁽¹⁾ but the risks and severity of the disease are related directly to the child's state of health and this will largely depend on his nutritional state. It is known that in the well fed measles is a mild disease ⁽²⁾ while among the malnourished in the Third World such complications as bronchopneumonia are common and mortality is high ⁽³⁾. There is clear evidence that high mortality from measles was related to poverty in nineteenth century Glasgow. The medical officer pointed out in the 1880's and '90's that measles was very often fatal in the children of the poor who frequented Common Lodging Houses, poorhouses and farmed out houses ⁽⁴⁾ and when it broke out in the nursery of the City Poor House he remarked that it was one of the "most fatal epidemic diseases that can appear among pauper children. It is always very fatal in the Poorhouse ..." ⁽⁵⁾. In Glasgow measles mortality was highest in very small houses (the homes of the very poor) and higher still in institutions (Table LXVIII).

Table LXVIII ⁽⁶⁾

Measles mortality in relation to house size: Glasgow 1908

No. of apartments	cases	deaths	D.R./100
1	3,849	355	9.2
2	14,490	663	4.6
3	2,573	64	2.5
4 & over	855	13	1.5
institutions	266	28	10.5

1. There is no evidence that the virulence of measles has fluctuated since the eighteenth century, McKeown, op.cit. p.85.
2. *ibid.* p.136.
3. A.B. Christie, op.cit. pp.383-90.
4. G.C.A. E1 6A 25, p.809.
5. G.C.A. E1 6A 17, p.142 and see E1 20 2, p.201. 1875.
6. From Report of the M.O. of the City of Glasgow, 1908, p.95.

This supports McKeown's view ⁽¹⁾ that measles mortality is related directly to poverty, the crucial factor being nutrition. The slight improvement in measles mortality in Glasgow that had taken place by 1911 is therefore probably explained by improved nutrition that was made possible by the rising standard of living.

1. McKeown, op.cit. p.134.

(viii) Diphtheria

The decline in mortality from diphtheria and croup accounts for 4% of the Glasgow and 8% of the Scottish mortality decline between the 1860's and 1901-10 (Table III). There had been a major epidemic of diphtheria in Glasgow in the 1860's ⁽¹⁾ as Figure 8 shows, thereafter mortality declined until the 1890's when the disease became more prevalent ⁽²⁾ as a second epidemic wave swept through Europe ⁽³⁾.

Diphtheria is a disease that is most common in young children and the case fatality rate varies inversely with the age of the patient, being highest in infancy ⁽⁴⁾. The disease is spread directly from person to person ⁽⁵⁾ and it tends to prevail in places where children are herded together, schools, institutions, and crowded houses ⁽⁶⁾.

As Table XLVIII shows the proportion of deaths from diphtheria in Glasgow that occurred in the City Fever Hospitals had increased to over 60% by the first decade of the twentieth century. Evidently by then many cases were receiving hospital treatment. (The increase, according to Russell, was the result of the operation of the Infectious Disease (Notification) Act ⁽⁷⁾). Unlike other infectious diseases treated in hospital, however, there is reason to suppose that in the case of diphtheria treatment did have an effect on mortality from the 1890's onwards. Table XLVI shows that at Belvidere hospital case mortality fell from over 36% in the years 1890-4 to 19% in 1895-9, 17% in 1900-4, and 12% between 1905 and 1909; at Ruchill diphtheria mortality was

1. A. Newsholme, The Origin and Spread of Pandemic Diphtheria (1896).
2. Chalmers, op.cit. p.323.
3. Rosen, op.cit. p.653.
4. Topley and Wilson, op.cit. p.1805.
5. A.B. Christie, op.cit. p.939.
6. Topley and Wilson, op.cit.
7. Russell (1895), op.cit. p.99.

never over 15%. In 1894 anti-toxin treatment, which has remained the accepted form of treatment ever since ⁽¹⁾, was introduced at Belvidere and mortality fell dramatically ⁽²⁾. It was immediately clear that this treatment was extremely effective and the Health Committee considered whether anti-toxin should be made freely available to local doctors ⁽³⁾, however no decision had been reached on this matter by the end of the period under discussion ⁽⁴⁾.

Experience in Glasgow suggests, therefore, that in Glasgow anti-toxin treatment contributed to the decline of diphtheria mortality as it probably did throughout the country ⁽⁵⁾.

1. McKeown, op.cit. p.98.
2. Local public opinion was made aware of this new treatment, Dr. J. Glaister for example, the Professor of Forensic Medicine and Public Health at St. Mungo's College, lectured to the Philosophical Society of Glasgow on the subject, Glasgow Herald, March 21 1895.
3. Rep. M.O.H. of the City of Glasgow, 1905, p.65.
4. M.L. Minutes of Glasgow Corporation, p.669, 25 Jan. 1911.
5. McKeown, p.98.

(ix) Infant Mortality

The level of infant mortality in Scotland remained fairly constant in the period between the 1850's and the early 1900's. In Glasgow, however, there was a marked downward trend (Fig. 2) from the mid-1870's but infant mortality in the city remained well above the national level.

Table LXVIII (1)

Glasgow: infant mortality from certain specified causes, deaths under 1 year/1,000 live births from:

	Respiratory diseases	Diarrhoeal diseases	Infectious diseases	Prematurity	All causes
1861	35	11	18	38	154
1871	54	13	21	39	191
1881	37	9	14	16	143
1891	37	12	15	19	148
1901	27	18	17	20	149
1911	26	19	16	20	136

The major causes of infant mortality were infantile diarrhoea (gastro-enteritis, enteritis, and diarrhoeal), respiratory diseases (the most common cause of infant deaths), the common infectious diseases of childhood, and prematurity. As Table LXVIII shows mortality from diarrhoeal diseases rose slightly, mortality from infectious diseases remained fairly constant, and that from respiratory diseases and prematurity fell (2).

1. Calculated from Registrar General's data; infectious diseases include measles, whooping cough, scarlet fever, diphtheria, and croup.
2. Other major causes of infant death include all kinds of T.B. The registered causes of infant deaths are probably even more unreliable than the causes of death given on the death certificates of older children and adults. Acute diseases progress very rapidly in babies and many would die before they could be seen by a doctor. Moreover, the term "prematurity" did not have the specific meaning it has today and probably covered a variety of conditions. McKeown suggests (p.144) that there was little reduction in mortality from this cause in England and Wales before 1900 and the downward trend in Glasgow may be due to changes in the way the term was used.

The reasons for the decline in respiratory disease mortality are probably the same as those accounting for the general decline in deaths from this cause ⁽¹⁾. The decline in prematurity can perhaps be explained by improvements in maternal health and nutrition ⁽²⁾ and the constant rate of mortality from infectious diseases at this age shows that infants were not effected by factors that led to changes in mortality from these diseases in older children ⁽³⁾. The trend in diarrhoeal disease mortality in infants did not follow the general trend experienced by other children and adults ⁽⁴⁾. This is because some organisms which contaminate food are pathogenic in infancy though harmless to older children and adults ⁽⁵⁾ and babies, particularly artificially fed babies, risk infection from contamination of their food by these micro-organisms. The use of unsterilized milk and unhygienic feeding bottles are therefore particularly dangerous. Gastro-enteritis and other diarrhoeal diseases were prevalent in the summer months and it was noted at the time that babies in small overcrowded homes were particularly at risk ⁽⁶⁾. In hot weather "the infant in the small house which is at once the bed chamber, the parlour, the dining-room, the kitchen, the larder, and the washing-house, can scarcely escape even in the hands of the most intelligent and careful" ⁽⁷⁾.

1. See above, pp. 381-5.
2. See above, Chapter 10, on improvements in diet.
3. See above, p.386 ff.
4. See above, p.356 ff.
5. McKeown, op.cit. p.122.
6. Summer diarrhoea was common in Europe and America in the nineteenth and early twentieth centuries, reaching epidemic proportions in hot summers. Modern bacteriological tests do not show that any one particular organism was responsible. The disease was particularly prevalent among artificially fed babies living in poor economic circumstances. A similar condition exists in underdeveloped countries today which is especially severe in malnourished children. The disease is inversely related to general standards of hygiene rather than to specific factors such as the quality of the drinking water, Topley and Wilson, op.cit. pp.2058-9.
7. G.C.A. El 6A 24, p.900.

It was known that artificial feeding was hazardous and that the danger increased in warm weather ⁽¹⁾; Dr. Russell noted in 1879 that "there is no doubt that the evil influences of artificial feeding, and of that neglect and ignorance in the management of infants which prevails in our cities, are intensified and developed to a fatal activity by heat ..." ⁽²⁾.

But it seems clear from what he wrote later on this matter that he was not aware of the important sources of contamination. He believed that milk would ferment and putrify in the warm summer months (especially when there were "electrical disturbances" in the weather) ⁽³⁾. He noted that a dirty feeding bottle that was "laid in a cradle, and allowed to lie there and ferment, speedily becomes a reservoir of irritant poison" ⁽⁴⁾. Russell's thinking was obviously still influenced by miasmatic theories.

It was only in the early years of the twentieth century that specific measures were taken in Glasgow to reduce the infant mortality rate. Improvements in the quality and purity of the milk available was one of the first steps to be taken. Attempts had already been initiated to improve the state of Glasgow's milk supply ⁽⁵⁾ but conditions in the byres of the city were still poor and much of the milk was grossly contaminated. As the veterinary surgeon of the sanitary department reported in 1899 the milk often contained a sediment which was "largely

1. When milk provided an ideal medium in which micro-organisms can flourish.
2. G.C.A. El 20 3, p.79.
3. G.C.A. El 20 7, pp.23-4.
4. *ibid.* The leaflet by Dr. Russell, "Hints about the Management of Children", which was issued from 1874 to everyone who registered a birth in Glasgow makes no mention when discussing artificial feeding (see Appendix IX for leaflet, p.2) of the need to scald milk or feeding bottles. This leaflet was recommended by the L.G.B. in 1906 for general use in Scotland, 12th Ann. Rep. L.G.B. (P.P. 1906, XXIX) Appendix A.
5. In 1904 it was concluded that the leaflet had little effect as the advice was largely ignored, Annual Report of the M.O.... 1904, p.35.
6. See above, pp.364-8.

composed of faeces, and it in great measure due to animals lying in their own excrement" (1). Sterilised milk was being sold by Glasgow dairies by the 1890's (2) but most of the milk was untreated (3). At this time some 20% of artificially fed infants in the city were being fed on tinned, condensed milk (4) which means that most bottle fed babies were being given untreated and probably contaminated cow's milk (5).

At the turn of the century interest in the problem of infant mortality was growing both here and abroad. In 1898 the medical officer of health of Glasgow had produced data showing that infant mortality was twice as high in crowded central districts like Cowcaddens and Bridgegate and Wynds than in middle class suburban areas like Hillhead and Kelvinside. The districts with high rates of infant mortality also had high general death rates from such causes as diarrhoea and enteric fever, both of which are associated with insanitary conditions (6). There was obviously a close relationship between environmental conditions and the level of infant mortality. Later he demonstrated that there was a direct relationship between house size (which is itself a measure of a family's income) and infant mortality. The general level of infant mortality was higher in one apartment houses than in larger houses, deaths

1. G.C.A. El 34 3, No. 10.
2. One large dairy company, the United Creameries which had dairies in Wigtown and Kircudbright and sent milk to Glasgow, scalded and chilled its milk to improve keeping quality, Stratten, op.cit. p.222. In 1902 the M.O.H. refers to a dairy in the west end of the city which pasteurised most of its milk, M.L. Minutes of Corp.... p.374.
3. Until at least the 1920's much of the milk sold in Glasgow was untreated, McGregor, op.cit. p.73.
4. Annual Report M.O. of the City of Glasgow, 1904, p.35. Dr. W. Smith Sinclair's Inquiry into the condition of recently born children in districts with high infantile mortality.
5. Much of the milk sold in poorer districts was skim milk, Ann. Rep. M.O. 1903, p.29.
6. Annual Rep. of the M.O. of the City of Glasgow for 1899 & 1900, p.23.

from prematurity and diarrhoeal diseases of children under one year were twice as common in one apartment than in four apartment houses, and the death rate from respiratory diseases was 50% higher in the smaller houses ⁽¹⁾. The discrepancy that existed between the infant mortality rates of legitimate and illegitimate infants was another indication of the relationship between environmental conditions and the health of infants.

Table LXIX (2)

Glasgow: infant mortality rates of legitimate and illegitimate infants
(‰ live births)

	Legitimate	Illegitimate
1873-5	152	285
1898-1902	140	277

As Dr. Chalmers showed (Table LXIX) this discrepancy had changed little since the 1870's. He attributed it to the fact that illegitimate infants are more likely to be neglected than legitimate ones and more likely to be artificially fed ⁽³⁾. Measures were obviously required to reduce the hazards of artificial feeding.

One of the first steps taken to reduce infant deaths in Glasgow was therefore the establishment of a municipal depot to sell sterilised milk for babies ⁽⁴⁾. It was hoped that raising the quality and purity of infants' milk would tend to educate parents and "improve the sense of duty towards their infants" ⁽⁵⁾. Milk was sold in individual bottles in order to ensure that it was not contaminated in the home; each bottle contained sufficient milk for one feed. Three strengths of milk

1. A.K. Chalmers, "The house as a contributory factor in the death rate", Proceedings of the Royal Society of Medicine, VI (1913), 155.
2. Ann. Rep. M.O. ... 1902, p.25.
3. *ibid.*
4. Ann. Rep. M.O. ... 1903, p.32.
5. *ibid.*

(suitable for babies of under 3 months, 3-6 months, and 6-8 months) were available in baskets containing 9 bottles ⁽¹⁾. Other centres supplying Corporation milk were set up in Cowcaddens, Anderston, and Bridgeton and in 1905 a woman doctor was appointed to supervise the scheme. But the Corporation depot supplied relatively few infants, only 250 on average in 1904 and 450 in 1907 and as it was found that the milk had no special nutritional value and was not being bought for "the most neglected children as originally intended" ⁽²⁾ it was decided in 1910 that the depot should close. The infant welfare clinics that had been set up to distribute the milk continued. Here the lady doctor examined infants and organised classes on infant care and nutrition ⁽³⁾. A group of lady volunteers (which became the Glasgow Infant Health Visitors Association in 1908) visited and advised mothers on matters of child care. The supervision of particularly vulnerable infants was further extended when Glasgow adopted the Notification of Births Act in 1908. The health authorities were now informed of births within 36 hours and all infants (except those who were being attended by a family doctor) were visited by the woman doctor or one of the female sanitary inspectors who advised on feeding and other aspects of infant care. A comprehensive maternity and child welfare service developed from these early beginnings ⁽⁴⁾.

Beaver has recently suggested ⁽⁵⁾ that the fall in infant mortality from 1900 was mainly due to improvements in the milk supply of

1. M.L. Minutes of the Corporation of Glasgow, June 1904, p.1130; some infants were supplied with milk without charge, the cost being met from the Lord Provost's Fund, *ibid.* 22 March 1909, p.1096.
2. *ibid.* 13 June 1910, pp.2079-80.
3. Ann. Rep. M.O. ... 1906, p.41.
4. Chalmers, *op.cit.*, p.189.
5. M.W. Beaver, "Population, infant mortality and milk", Population Studies XXVII (1973), 243.

infants, namely the increasing availability of pathogen-free pasteurised and later dried and evaporated milk. In Glasgow it is clear that there was little safe cows' milk available for infant feeding in the period before the First World War which, as McKeown points out ⁽¹⁾, is why infant mortality remained so high and, in Glasgow, why infantile diarrhoeal mortality actually increased. The great fall in infant mortality came later, as Beaver points out ⁽²⁾, with the development of the maternity and child welfare services ⁽³⁾ and large scale commercial pasteurisation of milk. The fall in infant mortality in Glasgow that had taken place before 1911 was for other reasons ⁽⁴⁾ and was unrelated to steps to improve infant care introduced in the first decade of the twentieth century.

1. McKeown, op.cit. p.122.

2. Beaver, op.cit.

3. Which taught mothers the importance of safe and hygienic methods of infant feeding.

4. See above, Chapter 10.

Conclusion

This study has shown that the decline in mortality in Glasgow 1855-1911 owed little to specific hospital treatment or other medical therapies, but rather followed improvements in housing, in public health and in standards of food consumption. This conclusion is therefore similar to that reached by McKeown et al. in their studies on the contemporaneous decline in mortality which occurred in England and Wales. The few significant contributions to the decline in mortality in Glasgow which resulted from medical intervention were the isolation in hospital of cases of typhus and smallpox, which probably did reduce the incidence of these conditions, together with the new serum treatment for diphtheria, which led to a reduction in mortality, and vaccination against smallpox. The policy of compulsory infant vaccination led to a fall of the incidence of smallpox in infancy and it became a disease of older children and adults in this period; the ring vaccination of contacts was reasonably successful in containing the sporadic outbreaks of smallpox that occurred. Generally, however, hospital treatment and medical therapies had relatively little overall effect.

Hospital in-patient treatment played a very limited role in contributing to the decline in mortality; the voluntary hospitals treated many more surgical than medical patients although it was medical rather than surgical conditions that were the major causes of death and whose decline accounts for much of the fall in the general level of mortality. The increasing number of successful operations that were performed in the infirmaries of Glasgow thus contributed little to the decline in mortality and few patients with pulmonary T.B. or other respiratory diseases (which declined significantly in this period) were treated as in-patients.

Conditions in the poor law hospitals were deplorable and only improved at the turn of the century when the decline in mortality was already under way, and in any case there was no effective therapeutic treatment for the medical conditions which they treated. Municipal infectious disease hospitals had a limited impact, as this study has shown that hospital treatment and isolation was not the main reason for the decline of the infectious diseases. By the end of our period a large proportion of the cases of typhus, typhoid and smallpox were probably receiving hospital treatment as well as a proportion of the cases of measles, whooping cough, and diphtheria. The causative organisms of the latter three diseases and of scarlet fever were, however, ubiquitous in the community and so hospital isolation probably did little to reduce the incidence of infection. Enteric fever and other diarrhoeal diseases are spread in contaminated water and food and so it was sanitary improvements rather than hospital isolation that contributed to their decline. Apart from the serum treatment for diphtheria the treatment these hospitals offered was of little value. Much of the decline in mortality occurred in children but the small Glasgow Hospital for Sick Children did not treat infectious diseases and treated in its wards only a small number of those with the common (medical) conditions responsible for the bulk of child mortality at this time.

Hospital outpatient departments and dispensaries certainly attempted to treat the medical conditions which were the basic causes of mortality. There were, however, few effective drugs available to dispensary doctors at this time; district nurses, poor law medical officers and medical practitioners also laboured under this severe handicap.

Thus, even after taking into account the limited role of hospitals and medical treatment, and the natural decline in the severity of the scarlet fever streptococcus, the main explanation for fall in mortality in Glasgow seems to lie in public health improvements such as better sanitation, a slight improvement in housing and overcrowding, and in better standards of food purity and possibly (though the evidence is slight) in rising standards of food consumption per head.

APPENDIX.

Table III

Glasgow: mean annual mortality rates per 100,000 living due to certain specified diseases in decennia 1861-70 and 1901-10

Cause	1861-70		1901-10		Difference % of total differences	
	M	F	M	F	M*	F**
T.B. respiratory	373 ^(a1)	423 ^(a2)	174 ^(b1)	152 ^(b2)	17.27	26.05
T.B. other	202	140	96	82	9.20	5.57
All other respiratory diseases	648	558	421	359	19.70	19.13
Typhus, enteric & simple continued fever	209	187	16	10	16.75	17.0
Scarlet fever	135	112	11	11	10.76	9.71
Diarrhoea, dysentery & enteritis	139	121	66	56	6.33	6.25
Smallpox	26	19	5	2	1.82	1.63
Whooping cough	141	154	74	79	5.81	7.21
Measles	84	72	61	55	1.99	1.63
Diphtheria & croup	67	62	19	18	4.16	4.23
Other diseases	1162	1024	1091	1008	6.15	1.53
Total	3186	2872	2034	1832	100	100
	*- $\frac{(a1-b1) 100}{3186-2034}$				**- $\frac{(a2-b2) 100}{2872-1832}$	

Scotland: mean annual mortality rates per 100,000 living due to certain specified diseases in decennia 1861-70 and 1901-10

Cause	1861-70		1901-10		Difference % of total differences	
	M	F	M	F	M*	F**
T.B. Respiratory	248 ^(a1)	261 ^(a2)	141 ^(b1)	134 ^(b2)	17.86	25.65
T.B. other	120	88	75	66	7.51	4.44
All other respiratory diseases	330	279	297	250	5.50	5.83
Typhus, enteric & simple continued fever	114	107	11	8	17.19	20.00
Scarlet fever	98	84	8	8	15.02	15.35
Diarrhoea, dysentery & enteritis	96	85	51	45	7.51	8.08
Smallpox	19	15	1	0.8	3.00	2.82
Whooping cough	62	69	40	47	3.67	4.44
Measles	43	37	35	32	1.33	1.00
Diphtheria & croup	68	60	17	16	8.51	8.88
Other causes	1101	1023	1024	1006	12.85	3.43
Total	2299	2108	1700	1613	100	100
	*- $\frac{(a1-b1) 100}{2299-1700}$				** $\frac{(a2-b2) 100}{2108-1613}$	

Table VII

Percentage of deaths at different ages in successive censal years

Scotland

	1861		1871		1881		1891	
	M	F	M	F	M	F	M	F
under 1 year	21.3	16.5	22.6	17.9	21.9	17.2	22.1	16.4
1-4 yrs	18.5	17.4	17.4	16.7	14.9	13.7	12.6	12.2
15-24 yrs	7.7	7.2	7.9	7.8	6.9	6.6	5.4	5.6
15-24 yrs	7.6	7.4	7.5	7.2	7.0	7.1	6.2	6.1
25-44 yrs	11.7	13.7	12.4	13.8	12.8	13.9	12.1	13.3
45-64 yrs	14.2	14.0	14.4	14.6	17.0	16.4	19.1	17.8
65 yrs +	18.2	23.3	17.3	21.5	19.1	24.6	22.	28.3
	99	99	99	99	99	99	99	99
	1901		1911					
	M	F	M	F				
under 1 year	23.7	18.9	21.4	16.7				
1-4 yrs	12.5	12.0	10.5	9.8				
5-14 yrs	4.4	4.9	4.3	4.4				
15-24 yrs	5.5	5.9	4.9	4.9				
25-44 yrs	13.3	13.3	12.2	13.1				
45-64 yrs	19.8	18.5	21.0	18.7				
65 yrs +	20.5	26.0	25.3	32.2				
	99	99	99	99				

Glasgow

	1861		1871		1881		1891	
	M	F	M	F	M	F	M	F
under 1 year	26.1	20.4	24.7	20.9	23.5	18.9	23.1	18.0
1-4 yrs	27.1	25.6	25.8	25.3	20.9	19.6	17.3	17.3
5-14 yrs	6.8	7.0	7.8	7.9	7.9	7.2	5.6	5.7
15-24 yrs	6.4	7.7	6.9	7.5	7.5	8.0	6.6	6.8
25-44 yrs	13.2	15.1	13.2	14.4	14.1	15.6	14.9	15.4
45-64 yrs	13.2	12.9	14.1	14.0	17.5	17.5	21.0	20.6
65 yrs +	6.8	11.0	7.1	9.8	8.2	12.8	11.2	15.9
	99	99	99	99	99	99	99	99
	1901		1911					
	M	F	both sexes					
under 1 year	24.0	20.6	21.7					
1-4 yrs	17.4	17.7	13.9					
5-14 yrs	4.6	5.6	4.8					
15-24 yrs	5.7	5.8	4.6					
25-44 yrs	16.3	15.5	14.2					
45-64 yrs	20.7	19.3	21.4					
65 yrs +	11.0	15.2	19.2					
	99	99	99					

Table VIII

Deaths from respiratory diseases at different ages/
100,000 living of the same age

Glasgow

	1861		1871		1881		1891	
	M	F	M	F	M	F	M	F
all ages	615.9	505.8	833.7	720.2	666.7	624.2	716.0	638.0
under 1 year	4899.3	3768.3	7054.1	5746.9	4994.3	4090.3	5083	3923.4
1-4 yrs	1739.0	1607.9	2367.3	2249.7	1419.4	1368.8	1286.4	1274.9
5-14 yrs	82.8	94.3	127.4	136.6	95.8	104.5	95.0	64.0
15-24 yrs	72.8	30.4	110.1	76.8	122.4	113.6	103.	88.6
25-44 yrs	219.6	181.3	279.9	240.9	296.5	253.3	362.1	251.3
44-64 yrs	835.9	687.8	1233.6	904.6	1235.1	1020.7	1544.1	1180
65 yrs +	2150.3	1966.2	2528.3	2261.2	3024.8	2835.6	3661.7	3489.2

	1901		1911
	M	F	both sexes
all ages	470.6	384.6	325.8
under 1 year	3329.1	3121.4	3160
1-4 yrs	995.4	886.4	671.4
5-14 yrs	63.5	67.4	41.8
15-24 yrs	82.5	36.8	29.8
25-44 yrs	244.	115.3	108.9
45-64 yrs	895.	680.7	485.9
65 yrs +	2431.	1953.4	1852.2

Scotland

	1861		1871		1881		1891	
	M	F	M	F	M	F	M	F
all ages	299.0	242.0	394.9	340.9	392.5	347.9	452.7	398.4
under 1 year	2662.0	2331.1	3709.5	2992.7	3335.7	2637.9	3771.7	2680.9
1-4 yrs	544.1	550.1	752.1	755.8	599.2	575.7	635.3	610.7
5-14 yrs	44.9	43.3	52.2	53.8	47.0	44.8	49.0	44.4
15-24 yrs	51.3	36.7	54.2	40.0	61.1	46.4	68.0	50.3
25-44 yrs	120.4	89.4	143.1	106.9	166.5	120.7	191.	126.1
45-64 yrs	385.4	285.3	531.7	388.7	655.5	484.0	795.5	569.7
65 yrs +	1276.1	1033.2	1371.4	1291.2	1676.9	1647.9	2188.1	2274.6

	1901		1911	
	M	F	M	F
all ages	3317.5	262.1	259.3	219.4
under 1 year	2785.1	2271.1	2588.3	1934.3
1-4 yrs	515.3	483.6	394.8	376.0
5-14 yrs	37.5	35.4	29.9	29.6
15-24 yrs	46.5	26.5	38.6	26.3
25-44 yrs	141.7	73.0	92.0	59.9
45-64 yrs	535.8	363.6	379.2	232.7
65 yrs +	1535.2	500.9	1412.9	1280.7

Table IX

Deaths from respiratory diseases at different ages/
1,000 deaths from all causes

Glasgow

	1861		1871		1881		1891	
	M	F	M	F	M	F	M	F
all ages	209.6	193.6	244.1	224.8	256.8	253.8	277.6	256.5
under 1 year	235.7	218.0	290.5	273.4	262.8	264.0	256.7	250.9
1-4 yrs	245.6	236.4	287.9	274.4	286.3	290.0	290.5	286.7
5-14 yrs	88.9	96.1	103.5	110.4	99.0	119.9	144.2	95.3
15-24 yrs	82.1	33.0	100.0	63.9	132.2	116.8	123.4	103.2
25-44 yrs	157.4	138.5	174.9	152.4	230.8	184.6	271.8	183.5
45-64 yrs	261.7	273.2	304.6	275.9	332.4	340.6	367.5	336.0
65 yrs +	209.6	196.3	226.7	241.9	314.0	312.5	297.6	323.9

	1901		1911
	M	F	both sexes
all ages	209.1	191.7	187.1
under 1 year	169.5	195.8	196.6
1-4 yrs	239.2	230.4	246.3
5-14 yrs	124.3	117.9	99.0
15-24 yrs	135.4	65.5	70.9
25-44 yrs	198.8	109.6	134.5
45-64 yrs	260.9	246.3	197.4
65 yrs +	240.3	231.9	209.2

Scotland

	1861		1871		1881		1891	
	M	F	M	F	M	F	M	F
all ages	140.3	124.0	171.9	158.1	195.6	185.9	213.2	195.5
under 1 year	184.2	198.4	226.7	220.8	232.6	228.6	227.0	202.6
1-4 yrs	157.3	161.0	209.8	207.9	226.0	227.8	243.6	228.9
5-14 yrs	65.8	64.2	69.9	68.6	81.2	78.3	102.5	84.8
15-24 yrs	60.1	48.5	59.8	46.6	85.9	65.3	101.9	77.1
25-44 yrs	114.2	88.3	118.5	93.2	157.2	118.3	184.8	120.6
45-64 yrs	180.4	158.7	218.5	186.2	251.8	236.7	266.8	239.7
65 yrs +	139.8	123.4	156.5	160.8	186.5	201.0	199.7	227.1

	1901		1911	
	M	F	M	F
all ages	171.6	151.0	167.1	149.8
under 1 year	169.3	170.1	184.0	172.6
1-4 yrs	214.3	208.5	222.0	224.2
5-14 yrs	102.8	84.6	97.9	92.3
15-24 yrs	91.7	50.4	94.7	68.0
25-44 yrs	154.0	86.8	134.9	88.9
45-64 yrs	205.3	170.8	177.0	134.8
65 yrs +	163.6	71.8	163.6	168.4

Table XI

Deaths from pulmonary T.B./100,000 living at different agesGlasgow

	1861		1871		1881		1891	
	M	F	M	F	M	F	M	F
all ages	381.0	418.6	405.8	486.7	297.9	324.2	240.9	243.6
under 1 year	393.7	293.4	360.1	267.0	350.4	277.7	83.4	108.9
1-4 yrs	477.5	450.0	342.2	327.2	165.4	148.3	110.7	121.4
5-14 yrs	231.1	242.2	252.9	283.2	150.4	149.2	73.7	106.7
15-24 yrs	406.9	522.3	498.4	707.4	430.5	502.8	310.8	333.7
25-44 yrs	423.7	523.6	469.6	634.1	371.0	464.7	347.2	401.2
45-64 yrs	406.8	294.2	468.0	399.0	302.2	245.2	339.4	166.5
65 yrs +	385.9	280.8	218.9	144.3	108.0	54.5	91.9	75.4

	1901		1911
	M	F	both sexes
all ages	186.3	179.3	147.1
under 1 year	68.1	69.3	27.1
1-4 yrs	102.3	87.5	54.5
5-14 yrs	31.1	76.5	41.8
15-24 yrs	191.7	199.5	168.7
25-44 yrs	279.6	300.1	216.5
45-64 yrs	303.5	153.7	236.
65 yrs +	108.5	42.4	121.4

Scotland

	1861		1871		1881		1891	
	M	F	M	F	M	F	M	F
all ages	242.6	251.3	256.5	283.9	195.0	217.0	180.2	185.3
under 1 year	199.7	164.4	201.7	166.2	137.3	112.2	78.5	73.6
1-4 yrs	153.0	155.4	116.8	132.0	63.5	39.9	53.4	61.1
5-14 yrs	93.5	114.7	95.5	139.4	68.5	103.2	50.1	87.6
15-24 yrs	368.2	352.0	388.5	435.9	286.8	365.0	248.0	277.8
25-44 yrs	311.2	363.8	383.9	428.7	305.8	348.0	293.4	305.8
45-64 yrs	253.3	236.0	298.5	242.5	237.2	165.5	238.2	146.7
65 yrs +	194.5	134.4	164.0	118.2	110.2	62.4	129.0	63.2

	1901		1911	
	M	F	M	F
all ages	152.0	151.0	115.9	113.0
under 1 year	68.9	56.5	23.7	44.6
1-4 yrs	53.2	43.7	30.4	27.5
5-14 yrs	30.8	65.7	21.7	39.2
15-24 yrs	187.6	226.7	137.6	163.0
25-44 yrs	244.3	237.4	197.8	179.0
45-64 yrs	218.1	128.5	178.1	113.3
65 yrs +	116.8	51.4	86.5	47.9

Table XII

Deaths from pulmonary T.B./1,000 deaths from all causes

Glasgow

	1861		1871		1881		1891	
	M	F	M	F	M	F	M	F
all ages	129.6	160.3	118.8	151.9	114.7	131.8	93.4	98.0
under 1 year	18.9	16.9	14.8	12.7	18.4	17.9	4.2	6.9
1-4 yrs	67.4	66.2	41.6	39.9	33.3	31.4	25.0	27.3
5-14 yrs	247.9	246.7	205.5	228.8	155.3	171.3	111.9	158.9
15-24 yrs	453.2	567.3	452.7	589.2	464.8	517.2	372.3	388.6
25-44 yrs	303.8	400.0	293.4	401.4	288.8	388.5	260.7	292.9
45-64 yrs	127.4	116.9	115.5	121.7	81.3	81.8	80.7	47.4
65 yrs +	37.6	28.0	19.6	15.4	11.2	6.0	7.4	7.0

	1901		1911
	M	F	both sexes
all ages	82.8	89.3	84.5
under 1 year	3.4	4.3	1.6
1-4 yrs	24.6	22.7	20.0
5-14 yrs	60.9	133.7	99.0
15-24 yrs	314.5	355.8	400.6
25-44 yrs	227.8	285.2	267.5
45-64 yrs	88.5	55.6	80.6
65 yrs +	10.7	5.0	13.7

Scotland

	1861		1871		1881		1891	
	M	F	M	F	M	F	M	F
all ages	113.8	128.8	111.6	131.6	97.2	116.0	85.1	90.9
under 1 year	13.8	13.9	12.3	12.2	9.5	9.7	4.7	5.5
1-4 yrs	44.2	45.4	32.5	36.3	23.9	24.2	20.5	22.9
5-14 yrs	137.1	169.9	127.9	178.5	118.2	180.3	104.7	167.2
15-24 yrs	431.0	464.8	428.5	508.5	403.1	512.8	371.5	425.7
25-44 yrs	295.3	359.6	317.9	373.7	288.7	341.3	284.0	292.5
45-64 yrs	118.4	131.3	122.6	116.1	91.1	80.9	79.9	61.7
65 yrs +	21.3	16.0	18.7	14.7	12.2	7.6	11.7	6.3

	1901		1911	
	M	F	M	F
all ages	82.1	87.0	74.7	77.2
under 1 year	4.1	4.2	1.6	3.9
1-4 yrs	22.1	18.8	17.1	16.3
5-11 yrs	84.8	157.2	71.3	122.3
15-24 yrs	370.0	430.7	337.8	420.6
25-44 yrs	265.5	282.4	289.9	265.5
45-64 yrs	83.5	60.4	83.1	65.6
65 yrs +	12.4	6.3	10.0	6.3

Table XIII

Deaths from pulmonary T.B. at different ages
as a percentage of total deaths

Glasgow

	1861		1871		1881		1891	
	M	F	M	F	M	F	M	F
under 1 year	3.8	2.1	3.0	1.7	3.7	2.5	1.0	1.2
1-4 yrs	14.1	10.5	9.0	6.6	4.6	4.6	4.6	4.8
5-14 yrs	13.0	10.8	13.5	11.9	10.8	9.3	6.7	9.2
15-24 yrs	22.9	27.3	26.5	29.1	30.4	31.6	26.6	27.3
25-44 yrs	31.1	37.7	32.7	38.1	35.6	40.2	41.8	46.1
45-64 yrs	13.0	9.4	13.7	11.2	12.4	10.9	18.2	9.9
65 yrs +	101.9 100	101.9 100	101.1 100	100.9 100	100.8 100	100.5 100	100.8 100	101.1 100

	1901		1911
	M	F	both sexes
under 1 year	1.0	1.0	0.4
1-4 yrs	5.1	4.4	3.2
5-14 yrs	3.4	8.4	5.7
15-24 yrs	21.6	23.4	22.0
25-44 yrs	45.1	49.7	44.9
45-64 yrs	22.1	12.0	20.4
65 yrs +	101.4 100	100.8 100	101.1 100

Scotland

	1861		1871		1881		1891	
	M	F	M	F	M	F	M	F
under 1 year	2.6	1.8	2.5	1.6	2.1	1.4	1.2	1.0
1-4 yrs	7.2	6.1	5.1	4.6	3.6	2.8	3.0	3.0
5-14 yrs	9.2	9.5	9.1	10.6	8.4	10.2	6.7	10.4
15-24 yrs	29.1	26.9	28.8	28.1	29.1	31.5	27.2	28.5
25-44 yrs	30.5	38.3	35.5	39.4	38.1	40.8	40.6	42.8
45-64 yrs	14.8	14.3	15.8	12.9	15.9	11.4	17.9	12.1
65 yrs +	3.4 100	2.9 100	2.8 100	2.8 100	2.4 100	1.6 100	3.0 100	1.9 100

	1901		1911	
	M	F	M	F
under 1 year	1.2	0.9	0.4	0.8
1-4 yrs	3.3	2.6	2.3	2.0
5-14 yrs	4.5	8.9	3.9	7.0
15-24 yrs	25.0	29.2	21.5	26.2
25-44 yrs	43.1	43.3	45.7	45.1
45-64 yrs	20.1	12.9	22.6	15.9
65 yrs +	3.1 100	1.9 100	3.2 100	2.6 100

Table XIV

Deaths from non-respiratory T.B. ⁽¹⁾/100,000 living

Glasgow

	1861		1871		1881		1891	
	M	F	M	F	M	F	M	F
all ages	196	126	245	191	149	117	103	77
under 1 year	1472	1081	1999	1843	1326	972	774	690
1-4 yrs	888	711	1018	912	599	515	464	342
5-14 yrs	128	81	225	172	142	128	95	68
15-24 yrs	37	17	42	34	38	27	34	22
15-44 yrs	13	7	15	8	9	9	14	14
45-64 yrs	13	7	21	14	16	-	-	-
65 yrs +	27	16	39	-	-	10	-	-

	1901		1911
	M	F	both sexes
all ages	95	87	79
under 1 year	768	624	726
1-4 yrs	423	372	341
5-14 yrs	92	106	72
15-24 yrs	26	38	35
25-44 yrs	18	21	23
45-64 yrs	25	14	21
65 yrs +	-	-	16

Scotland

	1861		1871		1881		1891	
	M	F	M	F	M	F	M	F
all ages	115	83	131	102	105	84	77	61
under 1 year	951	754	1243	1053	999	761	676	549
1-4 yrs	414	354	475	432	359	338	281	238
5-14 yrs	88	62	101	84	92	82	66	67
15-24 yrs	44	28	31	26	30	25	31	29
25-44 yrs	20	18	22	16	17	13	15	13
45-64 yrs	16	14	11	8	8	8	10	7
65 yrs +	12	22	12	13	10	14	10	4

	1901		1911	
	M	F	M	F
all ages	71	64	69	55
under 1 year	672	490	612	420
1-4 yrs	282	234	213	170
5-14 yrs	62	70	60	58
15-24 yrs	31	38	36	31
25-44 yrs	24	22	24	25
45-64 yrs	19	15	21	17
65 yrs +	14	11	19	9

1. Including T.B. meningitis, scrofula, and tabes mesenterica.

Table XV

Deaths from T.B. meningitis/100,000 living

Glasgow

	1861		1871		1881		1891	
	M	F	M	F	M	F	M	F
all ages	105	68	125	100	64	53	51	40
under 1 year	1049	787	1254	1207	863	580	524	508
1-4 yrs	520	387	587	490	272	252	260	196
5-14 yrs	32	30	81	61	41	46	34	26
15-24 yrs	2	2	2	2	1	1	5	1
25-44 yrs	-	-	-	-	-	-	1	2
45-64 yrs	-	-	-	-	-	-	-	-
65 yrs +	-	-	-	-	-	-	-	-

	1901		1911
	M	F	both sexes
all ages	31	31	30
under 1 year	340	307	401
1-4 yrs	147	129	165
5-14 yrs	33	45	19
15-24 yrs	1	7	7
25-44 yrs	0.8	1	2
45-64 yrs	3	-	1
65 yrs +	-	-	-

Scotland

	1861		1871		1881		1891	
	M	F	M	F	M	F	M	F
all ages	59	41	72	54	55	42	34	27
under 1 year	653	495	840	691	646	469	396	317
1-4 yrs	254	207	294	263	215	183	152	117
5-14 yrs	36	32	47	39	40	41	26	29
15-24 yrs	2	2	4	3	2	4	4	6
25-44 yrs	0.2	0.4	2	1	3	2	1	1
45-64 yrs	0.4	0.4	-	-	-	-	0.7	0.3
65 yrs +	-	-	-	-	-	-	2	-

	1901		1911	
	M	F	M	F
all ages	28	22	25	18
under 1 year	318	229	303	221
1-4 yrs	125	98	127	97
5-14 yrs	24	26	20	20
15-24 yrs	6	6	5	4
25-44 yrs	2	2	2	1
45-64 yrs	0.9	1	0.5	0.7
65 yrs +	-	0.7	-	-

Table XVI (a) (1)

The changing age pattern of smallpox mortality in Glasgow

	<u>% total deaths under 10 yrs caused by smallpox</u>	<u>% of total smallpox deaths in children under 10 yrs</u>	
	both sexes	M.	F.
1791	44.4	-	-
1801	31.9	-	-
1811	8.5	-	-
1861	1.9	87	85
1871	0.9	33	65
1881	0.03	-	-
1891	0	-	-
1901	0.4	12	17
1911	0	-	-

1. Sources, Glasgow Bills of Mortality and Detailed Annual Reports of the Registrar General.

Table XVI (b)

Smallpox deaths/100,000 living

Glasgow

	1861		1871		1881		1891	
	M	F	M	F	M	F	M	F
all ages	41.4	25.7	49.7	27.9	-	0.7	-	-
under 1 year	408.2	277.9	335.9	317.8	-	12.6	-	-
1-4 yrs	167.2	121.0	24.1	36.8	-	-	-	-
5-14 yrs	15.0	10.2	49.7	35.6	-	1.8	-	-
15-24 yrs	7.5	10.8	50.0	14.1	-	-	-	-
25-44 yrs	9.6	1.5	56.6	11.0	-	-	-	-
45-64 yrs	-	-	10.8	8.8	-	-	-	-
65 yrs +	-	-	-	-	-	-	-	-

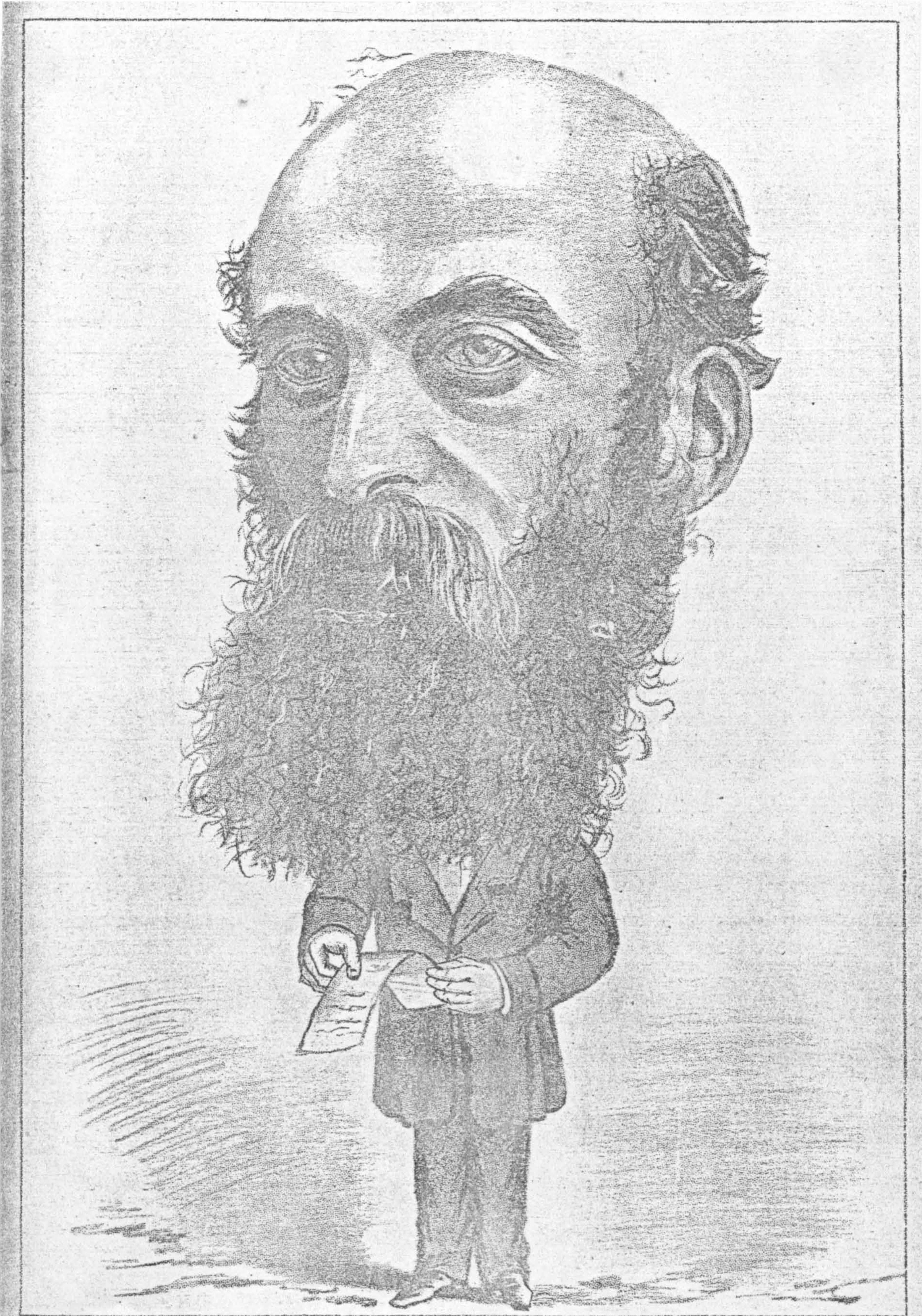
	1901		1911
	M	F	both sexes
all ages	33.9	18.8	-
under 1 year	107.0	89.1	-
1-4 yrs	11.3	11.2	-
5-14 yrs	3.8	3.8	-
15-24 yrs	19.0	4.9	-
25-44 yrs	64.1	32.0	-
45-64 yrs	39.4	25.6	-
65 yrs +	21.7	14.1	-

Scotland

	1861		1871		1881		1891	
	M	F	M	F	M	F	M	F
all ages	28.6	21.7	44.8	39.4	0.6	0.3	-	-
under 1 year	275.7	227.4	203.6	204.3	21.6	16.5	-	-
1-4 yrs	96.4	91.3	26.1	30.8	-	-	-	-
5-14 yrs	12.3	12.7	46.6	51.0	0.4	0.4	-	-
15-24 yrs	10.0	8.0	49.7	39.7	1.1	0.5	-	-
25-44 yrs	8.6	5.3	55.3	37.0	0.9	-	-	-
45-64 yrs	8.7	3.6	20.1	13.4	0.4	0.3	-	-
65 yrs +	3.2	-	8.2	7.8	1.2	-	-	-

	1901		1911	
	M	F	M	F
all ages	7.8	4.6	0	0.1
under 1 year	24.1	21.1	-	-
1-4 yrs	2.3	2.4	-	-
5-14 yrs	0.8	1.0	-	-
15-24 yrs	3.8	1.3	-	0.4
25-44 yrs	16.7	8.9	0.1	0.1
45-64 yrs	9.8	5.4	0.2	-
65 yrs +	3.4	1.5	-	-

Dr. J. B. Russell.



Dr. A. K. Chalmers.

The Baillie, Vol. LVII. No 1478. 13th February, 1901.

THE MITCHELL LIBRARY

3



GILMOUR & DEAN, LITHO. GLASGOW.

THE MEDICAL OFFICER OF HEALTH FOR THE CITY.

Appendix III

The Royal Infirmary had 25 managers: (Buchanan, op.cit., p.57)

permanent members: The Lord Provost,
M.P. for Glasgow,
Dean of Guild,
Deacon Convenor,
Professor of Medicine at Glasgow University,
Professor of Anatomy,
President of the Faculty of Physicians & Surgeons

the remaining were elected annually:

1 by the Town Council
1 by the Merchants' House
1 by the Trades' House
1 by the Faculty of the College of Glasgow

3 others were elected by the Faculty of Physicians and Surgeons from members of the Faculty. 1 minister of the established church was elected annually by the established church ministers of Glasgow. 10 contributors were nominated by the contributors and subscribers to the Infirmary.

The Western Infirmary had 27 managers: (Disposition by the Principal and Professors of Glasgow University to the managers of the Western Infirmary, op.cit.)

2 elected from the Town Council,
University Senate,
Merchants' House,
Trades' House
Faculty of Physicians & Surgeons
Faculty of Procurators,

1 elected from the Commissioners of the Police Burgh of Partick,
Govan,
Hillhead,
Maryhill,

9 elected annually by the General Court of Contributors to the Infirmary.

The Victoria Infirmary managers: (Constitution of Victoria Infirmary, op.cit.)

permanent members: M.P.s of Glasgow,
M.P. of Govan Division,
M.P. of Easter Division of Renfrew,
Lord Provost,

3 workmen's governors representing the workmen who subscribed to the Infirmary,

2 elected from the Provost, Magistrates and Council of Glasgow,
the University Court,
the Faculty of Physicians,

1 from the Merchants' House,
Trades' House,
Faculty of Procurators,
Glasgow Southern Medical Society,
Provost and Council of Rutherglen,
Magistrates and Council of Pollokshaws,
Police Commissioners of the Burgh of Kinning Park,
Burgh of Pollokshields,
Burgh of Pollokshields East,
Burgh of Crosshill,
Burgh of Govanhill.

9 elected from the Court of Contributors.

The Glasgow Hospital for Sick Children:

was governed and managed by a committee of 6 ordinary Directors elected by the subscribers from their number with the addition of the Hon. Secretary and the Hon. Treasurer as Directors.

(Constitution and Rules of the Glasgow Hospital for Sick Children)

REPORT FOR 1898.

ORDINARY CONTRIBUTIONS, 1795-1898.

Year.	Annual Subscriptions.		Public Works and Warehouses.	Clyde Steamers.	Church Collections.	Donations under £50.	Total.
	Number.	Amount.					
1845	...	£2465 6 0	£668 0 1	£41 16 6	...	...	£3,175 2 7
1846	...	2555 7 0	701 15 7	56 15 6	...	...	3,313 18 1
1847	...	2748 8 6	1104 17 8	59 8 0	...	...	3,912 14 2
1848	...	2637 2 6	720 9 1	50 13 0	...	...	3,408 4 7
1849	...	2521 8 0	970 15 6	43 5 0	...	...	3,535 3 6
1850	...	2440 3 0	705 10 10	68 3 6	...	...	3,213 17 4
1851	...	2412 3 0	826 17 6	82 6 0	...	...	3,321 6 6
1852	...	2920 13 0	984 14 4	80 3 0	...	...	3,935 10 4
1853	...	3233 12 6	1319 16 5	79 2 0	...	...	4,632 19 11
1854	...	3423 14 6	1400 9 11	79 19 0	...	...	4,909 3 1
1855	...	3314 7 0	1648 15 3	100 5 6	...	...	5,063 7 2
1856	...	3434 2 0	1769 13 0	82 1 0	...	...	5,235 16 2
1857	...	3446 12 6	1600 11 5	104 11 9	...	...	5,151 15 4
1858	...	3417 13 0	1850 12 6	110 3 6	...	...	5,378 9 8
1859	...	3368 1 0	2043 12 5	109 19 2	...	...	5,521 12 7
1860	...	3479 8 0	2251 7 9	113 16 0	...	...	5,844 11 9
1861	...	3632 19 6	2295 3 7	115 13 0	...	...	6,013 15 1
1862	...	3748 5 7	2307 2 6	101 19 0	...	...	6,157 7 1
1863	...	3906 14 0	2973 10 7	48 5 0	...	£204 3 6	7,132 13 1
1864	...	5982 1 6	3987 16 2	112 5 0	...	378 14 2	10,490 16 12
1865	3560	5974 8 0	4172 10 10	92 1 9	...	176 14 10	10,415 13 1
1866	4085	6431 1 8	4834 17 8	107 16 0	£392 18 6	359 7 6	12,126 1 4
1867	4383	6487 9 11	5085 3 7	102 9 0	805 1 7	399 9 6	12,879 13 7
1868	4210	6456 18 0	5125 11 2	100 11 0	969 11 9	501 17 9	13,154 9 7
1869	4318	6547 1 2	5801 7 5	107 15 9	937 11 7	511 16 2	13,995 12 1
1870	5299	6870 6 8	6422 0 2	118 7 0	1121 1 6	354 19 6	14,886 14 2
1871	5418	7076 0 11	6691 15 3	126 0 9	1136 5 7	353 3 9	15,333 9 2
1872	5563	7337 8 1	6810 4 5	140 1 2	1190 12 1	316 6 10	15,794 12 1
1873	5657	7482 13 0	7357 16 5	126 3 9	1183 12 2	373 13 6	16,523 15 2
1874	5706	7499 2 7	6818 8 5	150 6 7	1187 7 8	283 9 7	15,958 14 2
1875	5741	7420 8 10	6427 5 2	189 9 5	1158 3 9	287 14 7	15,483 1 1
1876	5684	7334 10 11	5815 8 9	161 18 0	991 12 5	344 5 2	14,647 13 6
1877	5528	7205 13 1	4847 1 7	159 6 10	926 14 2	408 1 3	13,582 18 3
1878	5355	6969 14 4	4551 2 3	84 14 1	870 4 10	378 2 5	12,833 17 1
1879	5147	6616 11 1	4474 16 5	65 5 3	903 0 11	284 6 6	12,344 9 4
1880	5326	6801 3 4	4880 7 10	77 16 5	793 13 1	385 5 8	12,939 5 4
1881	5619	7051 9 0	5240 5 3	53 13 11	1018 0 0	658 1 5	14,021 2 1
1882	6433	7298 7 9	5352 2 2	87 3 4	946 11 8	526 19 4	14,211 4 2
1883	6704	7427 3 1	5392 8 10	76 6 9	970 7 10	590 6 4	14,456 11 1
1884	6864	7359 4 0	5155 4 3	91 7 8	959 8 4	521 7 4	14,386 11 1
1885	6756	7279 15 11	4964 15 4	118 0 3	941 17 8	474 0 2	13,773 11 1
1886	6686	7246 0 4	4868 1 4	93 15 10	857 11 1	510 18 1	13,576 11 1
1887	6894	7106 17 10	5134 11 5	87 2 2	975 10 4	401 15 9	13,765 12 1
1888	6900	7209 9 2	5260 3 10	71 18 6	859 3 1	418 17 2	13,817 12 1
1889	6935	7228 14 6	5514 17 10	80 17 4	866 7 6	413 5 2	14,164 12 1
1890	6918	7355 1 10	5759 7 0	81 13 7	781 11 1	427 8 1	14,465 12 1
1891	7314	7407 3 11	5897 18 3	57 19 8	747 19 1	414 16 11	14,435 12 1
1892	7533	7363 18 5	6004 5 10	63 13 7	916 10 4	409 11 6	14,762 12 1
1893	7421	7481 18 0	5475 19 2	57 18 6	770 12 4	483 17 3	14,276 12 1
1894	7896	8635 15 2	6391 7 6	116 9 9	453 8 2	608 8 1	16,255 12 1
1895	9745	8974 10 2	7033 9 5	98 14 9	1962 15 2	376 1 6	18,445 12 1
1896	10,509	9156 13 1	6962 16 6	132 8 11	2213 13 10	405 2 8	18,870 12 1
1897	10,714	9270 3 2	7378 19 2	127 17 8	2333 15 3	257 6 8	19,363 12 1
1898	10,691	9259 4 1	7606 14 2	93 18 0	2207 13 0	268 8 2	19,435 12 1

Annual Average during the first five Decades,

1795-1804,	...	...	£547 0 1
1805-1814,	...	...	1421 15 2
1815-1824,	...	...	2152 16 1
1825-1834,	...	...	3000 13 3
1835-1844,	...	...	3383 11 2

COMPARATIVE ANNUAL STATEMENT OF SUBSCRIPTIONS FOR MAINTENANCE SINCE THE
OPENING OF THE INSTITUTION IN 1874.

YEARS.	Annual Subscriptions.	Public Works, Warehouses, &c.	Donations for Maintenance.	Churches, &c.	Clyde Steamers.	Country Subscriptions.	Total.
1874-75	£3817 5 9	£926 13 1	£1960 2 11	£463 9 1	...	...	£7,167 10 10
1875-76	4193 13 1	1617 0 7	2683 11 9	704 5 1½	...	...	9,198 10 6½
1876-77	4529 16 7	1913 14 5	2811 7 7	887 19 6	...	...	9,642 18 1
1877-78	4315 8 7½	2083 4 8½	2451 0 0	877 7 2	£44 5 1	...	6,771 5 7
1878-79	4162 8 3½	1816 1 3½	687 19 7	781 0 7	51 6 11	...	7,698 16 8
1879-80	4461 5 6	1972 4 6½	1179 12 0½	873 1 10	67 4 6	...	8,553 8 5
1880-81	4722 7 11½	2305 11 6	3216 15 1	879 15 5½	50 7 0	...	11,174 17 0
1881-82	4804 6 9½	2681 16 6	4738 18 8	992 12 10	54 0 0	...	12,271 14 9½
1882-83	4819 10 10	3004 4 2½	3351 4 10	1121 19 10½	27 13 0	...	12,324 12 9
1883-84	4850 15 2½	3006 17 0	1582 11 9	1077 18 9	37 13 0	£220 0 9	10,775 16 6
1884-85	4908 11 10	2844 18 9	1601 12 2	1029 15 11½	80 10 6	372 3 11	10,837 11 1
1885-86	5049 16 5	2920 18 6	1662 6 2	1105 13 8	64 3 10	335 6 4	11,188 2 11
1886-87	5052 11 0	2874 9 5	1245 17 10	1071 14 9	129 5 9	413 10 1	10,787 8 10
1887-88	5082 0 1	3132 5 2	1068 16 3	1081 6 8	114 19 7	445 3 2	10,922 10 11
1888-89	5206 3 6	3440 15 10	1807 13 0	1073 9 11	107 10 3	475 17 10	12,111 10 4
1889-90	5282 6 10	3586 13 3	774 18 3	1030 10 9	98 9 0	654 8 0	11,427 6 1
1890-91	5295 11 11	4011 4 7	1076 2 0	1004 14 1	69 14 6	592 14 1	12,050 1 2
1891-92	5404 17 4	3919 0 0	1293 16 1	1059 2 10	79 2 0	611 2 8	12,367 0 11
1892-93	5443 9 2	3786 3 10	715 7 2	1041 13 0	66 17 6	610 1 6	11,663 12 2
1893-96	5619 0 8	3952 16 5	1033 17 5	951 8 4	83 2 11	657 2 3	12,297 8 0
1894-95	5702 8 9	4132 2 4	743 6 9	1708 1 9	88 14 3	639 17 1	13,014 8 11
1895-96	5811 2 4	4724 11 0	491 0 1	1649 2 9	69 4 0	703 11 11	13,478 12 1
1896-97	5814 7 11	4714 4 5	2018 5 6	1764 0 3	98 3 6	826 7 1	15,245 8 8
1897-98	6063 12 2	5062 25 5	867 11 7	1793 6 6	101 13 4	751 4 6	14,640 3 6
1898-99	6165 19 11	5208 10 3	875 4 4	1515 18 6	113 5 8	783 1 5	14,960 0 1
1899-00	6176 11 11	5530 14 4	823 5 10	1864 15 7	101 1 0	804 19 9	15,101 10 5
1900-01	6358 13 5	5745 1 2	611 16 5	1981 9 4	94 2 0	896 13 8	15,687 16 0
1901-02	6415 9 10	5969 8 6	790 1 8	2302 12 3	131 2 5	969 7 8	16,278 2 4
1902-1903	6473 2 1	5975 1 10	568 11 0	2098 7 8	118 5 1	1012 12 11	16,245 0 7

Western Infirmary Report for 1902-1903.

APPLICANTS, WITH SUBSCRIBERS' LINES, WAITING FOR ADMISSION AT
THE GLASGOW WESTERN INFIRMARY, AS REPORTED EVERY WEEK.

1885.	MEDICAL.		SURGICAL.		TOTAL.	1885.	MEDICAL.		SURGICAL.		TOTAL.	1886.	MEDICAL.		SURGICAL.		TOTAL.
	M.	F.	M.	F.			M.	F.	M.	F.			M.	F.			
Week ending						Week ending						Week ending					
Jan. 4	6	12	3	1	22	Sept. 6	...	...	15	3	18	May 1	...	5	5	9	19
" 11	7	14	...	...	21	" 13	1	3	12	3	19	" 8	...	3	4	10	17
" 18	1	15	...	...	16	" 20	1	3	4	2	10	" 15	...	3	7	11	21
" 25	4	13	...	...	17	" 27	1	3	...	...	4	" 22	...	4	6	11	21
Feb. 1	6	12	...	...	18	Oct. 4	3	3	1	...	7	" 29	1	3	2	8	14
" 8	5	24	2	...	31	" 11	7	2	1	...	10	June 5	2	3	4	5	14
" 15	9	28	1	...	38	" 18	12	2	5	...	19	" 12	2	3	5	6	16
" 22	5	19	3	...	27	" 25	10	1	5	1	17	" 19	7	3	9	5	18
March 1	12	21	4	...	37	" 31	1	3	6	1	11	" 26	...	3	9	3	15
" 8	11	20	1	3	35	Nov. 7	2	3	6	1	15	July 3	...	4	9	4	17
" 15	9	20	...	6	35	" 14	2	4	...	3	9	" 10	...	5	10	4	19
" 22	6	24	...	5	35	" 21	3	2	1	5	11	" 17	1	5	7	2	15
" 29	5	24	...	6	35	" 28	5	5	1	8	19	" 24	...	3	6	...	9
April 5	6	25	...	8	39	Dec. 5	11	4	...	...	15	" 31	...	6	7	...	13
" 12	9	26	1	6	42	" 12	3	9	...	1	13	Aug. 7	...	5	7	3	15
" 19	15	23	...	8	46	" 19	5	13	...	3	21	" 14	...	1	6	3	10
" 26	11	15	5	4	35	" 26	5	15	1	4	25	" 21	...	2	4	3	9
May 3	...	7	6	6	19	1886.						" 28	1	1	7	2	11
" 10	...	5	5	4	14	Jan. 2	5	12	3	4	24	Sept. 4	1	3	9	4	17
" 17	...	...	...	...	...	" 9	4	6	1	...	11	" 11	3	1	3	...	7
" 24	...	3	6	6	15	" 16	3	2	3	1	9	" 18	3	5	...	...	8
" 31	...	2	6	7	15	" 23	6	6	5	3	20	" 25	5	6	3	...	14
June 7	...	2	9	7	18	" 30	10	5	3	4	22	Oct. 2	5	4	1	1	11
" 14	1	5	12	7	25	Feb. 6	12	5	4	4	25	" 9	8	4	5	...	17
" 21	...	5	13	7	25	" 13	12	11	4	10	37	" 16	8	4	4	...	16
" 28	...	5	11	4	20	" 20	11	12	7	6	36	" 23	7	7	5	...	19
July 5	2	3	9	8	22	" 27	11	12	7	6	36	" 30	6	2	3	...	11
" 12	...	3	13	10	26	March 6	6	8	9	6	29	Nov. 6	11	2	4	...	17
" 19	...	...	14	8	22	" 13	5	10	4	8	27	" 13	6	4	3	1	14
" 26	...	1	13	9	23	" 20	4	14	4	9	31	" 20	2	6	4	1	13
Aug. 2	...	...	14	5	19	" 27	6	19	12	12	49	" 27	9	4	3	3	19
" 9	...	2	13	4	19	April 3	3	21	14	16	54	Dec. 4	8	3	4	2	17
" 16	...	1	17	5	23	" 10	2	20	8	10	40	" 11					
" 23	...	1	15	9	25	" 17	1	11	9	9	30	" 18					
" 30	...	...	16	7	23	" 24	...	6	5	8	19	" 25					0

(G.C.A. DTC 14 1 6. Minutes of Town Council and Committees as to proposed Southern Infirmary, Feb 1892).

Mrs. M. O. Higginbotham.

The Bailie, Vol. XVII, No. 439, 16th March 1881.



DUTIES
OF THE
DISTRICT SURGEONS.

The duties of each District Surgeon shall be:—

1. To attend within his District all poor persons who stand in need of medical or surgical assistance, including patients during cholera, and other epidemics, whenever required, by a written or printed order from the Inspector. The same services to be given in the case of poor persons having claims on Glasgow Parish, but residing in the Parishes of Barony, Govan, or Gorbals, contiguous to his District.
2. To perform the above duties to all persons without a written or printed order from the Inspector, whenever the Parochial Board shall deem it fit to suspend that part of the above Rule which requires such Order, and during the time it is so suspended.
3. To attend all aged and infirm persons permanently disabled, who are in receipt of Parochial relief, and residing within his District, on producing to him a Ticket furnished to them by the Parochial Board. A list of the names of such persons will be furnished to the Surgeon from time to time for his guidance.
4. To be at all times furnished with vaccine virus, and to vaccinate all persons who may come, or may be brought to him, for that purpose.
5. To transmit to the Inspector, whenever required, a written report of the state of health and fitness for work of any person applying for relief.
6. To give under his hand a certificate in the case of Lunatics, or of any other poor person, whenever required by the Inspector.
7. To enter in a regular and complete manner in the book provided for that purpose, the names and other particulars of illness and attendance, according to the form prescribed, of all poor persons receiving at his hands Parochial medical relief.
8. To make monthly returns of the sick poor to the Parochial Board, and an annual return on or before the first of June to the Board of Supervision, according to the forms prescribed by that Board, and to make such other returns of the sick poor as the Parochial Board and the Board of Supervision may from time to time require.
9. In keeping the books prescribed by this order, to employ, so far as is practicable, the terms used or recommended in the regulations and statistical nosology of the Registrar-General.
10. To attend when required any meeting of the Parochial Board, or of its Committee.
11. To furnish the Inspector with the name of a duly qualified medical Practitioner, for whose diligence he will be held responsible, and who will perform his duties in case of his absence from home, or other unavoidable hindrance to his personal attendance.
12. To obey all present and future Rules and Regulations of the Parochial Board and the Board of Supervision.
13. His salary for these services shall be £55 per annum, without other fee or emolument whatever, except in District No. 10, the salary for which shall be £45 per annum.

BY ORDER OF THE BOARD.

EBER. ADAMSON, Inspector.

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HINTS ABOUT



THE PREVENTION OF MEASLES.

The Committee on Health of Glasgow hope that parents and others will read this Paper carefully, and adopt the instructions which it contains, and any others given by the Medical Attendant having the same end in view.

Measles is a dangerous disease, one of the most dangerous with which a child under 5 years of age can be attacked. It is especially apt to be fatal to teething children. It tends to kill by producing inflammations of the lungs. It prepares the way for Consumption. It tends to maim by producing inflammations of the ears and eyes.

In Glasgow, during the last five years, Measles has caused three deaths for every one which has been caused by Scarlet Fever. Only one infectious disease has been more destructive of life, viz., Whooping-cough. Measles has carried off more than four times as many persons as Enteric Fever.

It is therefore a great mistake to look upon Measles as a trifling disease.

The older a child is the less likely is it to catch Measles; and, if it does, the less likely is it to die.

If every child could be protected from Measles until it had passed its fifth year, the mortality from Measles would be enormously decreased.

It is therefore a great mistake—because, as a rule, children sooner or later have Measles—to say “The sooner the better,” and to take no means to protect them, or even deliberately to expose them to infection.

It is wrong for mothers with children in arms to go into houses where Measles exists.

Every child ill of Measles ought at once to be put to bed and kept warm. The mildest cases may be made serious by a chill. Measles is, for this reason, most dangerous in winter and spring.

A case of Measles continues infectious for at least three weeks after the appearance of the rash. During that time separation from the healthy ought to be secured either by removal of the sick to hospital or by isolation at home.

Isolation means not merely a separate room for the sick, but the withdrawal of apparently healthy children of the same family from school (day and Sunday), and the exclusion of strange children from the house.

The isolation, as far as possible, from other children of all children belonging to the same family is more necessary in the case of Measles than of any other infectious disease, because of this peculiarity—for days before the rash comes out, the child is highly infectious.

School teachers especially ought to be familiar with the appearance of children in this stage of Measles.

The eyes are watery, glistening, and sensitive to light; there is a ringing cough, sneezing, and running from the nose, with a flushed face; in short, all the signs of a bad “cold in the head.”

No child showing these symptoms ought to be allowed to go to school.

Any child observed at school with these symptoms ought to be sent home at once. Such children are to be looked for more particularly in the Infant Department.

Parents or guardians who send children to school from an infected house, as well as teachers who receive them knowingly, are liable in a penalty.

N.B.—All the provisions of the “*Law about Infectious Diseases*,” explained in the pamphlet so entitled, are applicable to Measles.

Schools (day and Sunday) are the grand centres for the distribution of Measles. The Local Authority will exercise rigorously the power entrusted to it by the Legislature for the prevention of the attendance of children from infected families.

J. B. R.

SANITARY OFFICE,
MONTROSE STREET, GLASGOW,
January, 1897.



HINTS ABOUT

THE

PREVENTION OF CONSUMPTION.

The Committee on Health of Glasgow hope that all citizens will read this Paper carefully, and observe the instructions which it contains, and any others given by the Medical Attendant having the same end in view.

Consumption is an acquired, not a hereditary, disease.

What a child may inherit is not the seed, but the "good round" in which the seed will grow readily.

This is known as a "hereditary predisposition to Consumption." Special care ought to be taken to protect persons possessing it from any chance of catching the disease.

Colds, sore throats, infectious diseases (especially Measles, Whooping-cough, Scarlet and Enteric Fevers), intemperance, overcrowding, darkness, dampness, stale air—in short, whatever lowers health produces a predisposition to Consumption altogether apart from pedigree.

Consumption of the Lungs is only one of many forms of disease caused by a minute living creature (germ or microbe)—the bacillus of tubercle. Every case of Consumption has received this bacillus, either from man or beast (milk, flesh), and may pass it on to man or beast.

Good health, local and general, is like a coat of mail against the attacks of the bacillus of tubercle.

Every person suffering from Consumption suffers from a disease which may be communicated to other persons. This takes place through the spit, which contains bacilli.

So long as the spit is moist it can do no harm unless under such circumstances as are dealt with in Rules 6 and 7. The spit is gravely dangerous only when allowed to dry, become dust, and so infect the air we breathe.

The surest way to form infectious dust is to spit in a handkerchief and put it in the pocket or beneath the pillow, or to spit upon the floor.

The same result follows if spit is smeared over bed-clothes, night-dresses, &c., or, in the case of men, over moustache or beard.

Practically, then, a case of Consumption may be made perfectly harmless by preventing the spit from becoming dust.

1. *Indoors*.—The greatest care is necessary. Dust in closed places is the dust which infects. Use a spittoon containing a little water (not sand or sawdust), or spit into a rag or piece of paper, to be burned at once or thrown into the W.C.

2. *Out-of-doors*.—Dust is not so readily formed in our damp climate, and it is disinfected by sunshine and fresh air. It is therefore better to spit on the ground than into a handkerchief or into anything which is to be put into one's pocket, except a special spit-bottle, such as may be had for a small sum. Failing this, spit over a street gully or into the gutter, never on the pavement, and never in a tram-car, bus, cab, or railway carriage. Never swallow the spit; it may infect the bowels.

3. If a handkerchief or other article is soiled with tuberculous spit, keep it wet until it can be boiled and washed.

4. Empty the contents of spittoon down the W.C., and clean the spittoon with boiling water. A little carbolic acid will keep the flies away; these carry off infective matter.

5. In cleaning rooms occupied by consumptives, capture the dust with damp dusters, and tea leaves or damp sawdust used in sweeping. Do not chase it about or stir it up. Boil the dusters; burn the sawdust and tea leaves.

6. No spoon, cup, or other article which has been applied to the mouth of a consumptive ought to be used by a healthy person until it has been carefully washed. The remains of food left by a consumptive ought not to be used by the healthy.

7. No consumptive ought to kiss or be kissed, except on the cheek or brow.

8. No consumptive mother should give suck.

9. Consumptive persons ought to have a bed to themselves.

10. Sunlight and fresh air are never-failing disinfectants. Use them freely.

N.B.—*Consumption is not communicable by the breath or perspiration. If these precautions are attended to, there is no danger to the healthy in the ordinary intercourse of the family or society.*

DISINFECTION.

It is necessary that washing and disinfection should be effectively carried out after every death from Consumption.

The services of the Sanitary Department are at the disposal of the ratepayers for this purpose. Immediate notice of such an event ought to be sent to the Medical Officers of Health.

During the currency of cases of tuberculous disease in which there is a discharge, the Medical Officers will give any assistance in the way of washing and disinfection which may seem expedient in the public interest.

J. B. R.

SANITARY CHAMBERS,
MONTROSE STREET, GLASGOW,
October, 1896.

THE MANAGEMENT OF CHILDREN.

The Committee on Health of Glasgow, thinking that a few plain hints as to the care and upbringing of the Child whose Birth you have just Registered might be useful, hope you will pay earnest attention to the contents of this paper.

EYES.

The first thing to be done on the birth of a baby is to cleanse and gently wash the eyelids and thereabouts. If a baby's eyes run with matter and look red a few days after birth take it *at once* to a doctor. Delay is dangerous, and one or both eyes may be destroyed if not treated immediately. The discharge is infectious.

WASHING BABY.

Give baby a bath night and morning, using tepid water and a little soap. If accustomed to it from the first, even the youngest child will enjoy it. This, with care in changing cloths and sponging and washing gently with flannel, will both promote general health and prevent scalding.

DRESSING BABY.

The clothing should be warm, and fit easy. There should always be flannel next the skin. Tight bandaging, with the notion of "supporting" the body, is not only unnecessary but hurtful. Heat is life to an infant; and until children are able to run about, no part of the body, except the head and hands, should at any time be bare.

FEEDING BABY.

A newly-born baby should be put to the breast as soon as it is washed and dressed. This is best for both mother and child. We cannot improve upon this natural proceeding. The milk first supplied by the mother acts as a laxative, so that castor oil is unnecessary.

Should the mother have no milk at first, pure cow's milk, with an equal quantity of hot water and a little sugar, may be given until she is ready to nurse.

Provided the mother has plenty of breast milk, the child should get nothing else until it is six (at the very least, four) months old.

Put the child to the breast for the first six weeks every two hours during the day, and less frequently as it grows older. During the night it requires to be fed less often. Regular habits may be cultivated from the earliest age. It is a mistake to suppose that whenever a baby cries it requires the breast. It is dangerous to put the baby to the breast and then fall asleep. The child may be smothered, or at least indigestion and colic may be produced. If the mother has not enough breast milk, then it must be supplemented with a mixture of two-thirds pure milk to one-third warm water with sugar.

If, unfortunately, the baby must be brought up entirely "on the bottle," then (1), Use only pure fresh milk, in the proportion of two measures to one of hot water, with a little sugar. In cities the milk may generally be used as bought, but made lukewarm, and slightly sweetened. (2), Prepare no more than can be taken at once. What is left should be thrown out. (3), Never lay baby down to sleep with the teat in its mouth. This is sure to cause colic. (4), Wash the bottle carefully after each meal, and lay it in cold water until required again. The greatest pains must be taken to wash out the India-rubber tube and teat, so that no bits of curdled milk may be left. This is so difficult to do that the old-fashioned, boat-shaped feeding bottle is much safer to use. (5), In hot sultry weather dilute the milk with a third-part of lime-water instead of pure water, and then make lukewarm.

There is no substitute for good milk, and no necessity for supplementing it. Corn-flour, arrowroot, and such starchy articles are bad for young infants.

WEANING BABY.

The child should not be weaned suddenly but by degrees, and as a rule should not have the breast after the ninth month. After the sixth month bread and milk or oatmeal gruel thickly made may be given once or twice a day. Well boiled oatmeal porridge and sweet milk should be gradually introduced into the diet.

With porridge and milk night and morning, and the thin of broth, with bread, to dinner, children will thrive from the period of weaning. There is no diet so nutritious, so thrifty, or so easily prepared.

The habit of giving children, especially infants, share of their parents' food is a bad one, in cities where people have so generally abandoned the old Scotch fare, and taken to tea, bread, and fried or stewed meat. Take the trouble of making wholesome food for your children, and do not ruin their stomachs, and risk their lives, by giving them tea and toast, beef, bacon, &c.

FRESH AIR AND EXERCISE.

Although nobody will drink dirty water, it is astonishing how few take pains to avoid breathing dirty air. Children suffer more than adults from badly ventilated houses. They are tenderer, and pass the greater part of their time in the house. Open your windows a little at the top. Never keep dirt of any kind in your house a minute longer than necessary. The air of half the houses in Glasgow is made poisonous by carelessness in these respects, especially at night.

Take your children out for a walk every fine day. The time spent by many mothers in gossiping by the fireside or on the stairhead would give their families a walk. Taking them about at night, or in wet cold weather, should be avoided.

SLEEP.

Don't accustom your baby to be rocked or nursed to sleep, or to sleep in your arms.

Fresh air makes sleep more refreshing. The air cannot be fresh if the bed-clothes are dirty. Enclosed beds are very unhealthy. Young children in bed with their parents may be injured, or even smothered, by getting wholly beneath the bed-clothes.

Sleep comes naturally to a healthy child. Wakefulness means illness. During teething, when the child is irritable and restless, never use soothing syrups, sleeping draughts, laudanum or any other medicine. Besides being poisonous, they are all mere devices of selfishness, saving the mother

trouble at the expense of the child's welfare. Patience will overcome the wakefulness, and your baby will be all the better in the morning.

TO NURSING MOTHERS.

The living connection between the body of the mother and the body of the child, which exists before its birth, and makes both suffer from injurious influences, continues throughout the period of suckling.

Nursing mothers should therefore preserve as much peace of mind and body as possible. They should have plain nutritious diet. Above all things they should avoid whisky. For a nursing mother to drink whisky is almost as bad as to give it to the child directly, which would be to poison it.

TO PARENTS.

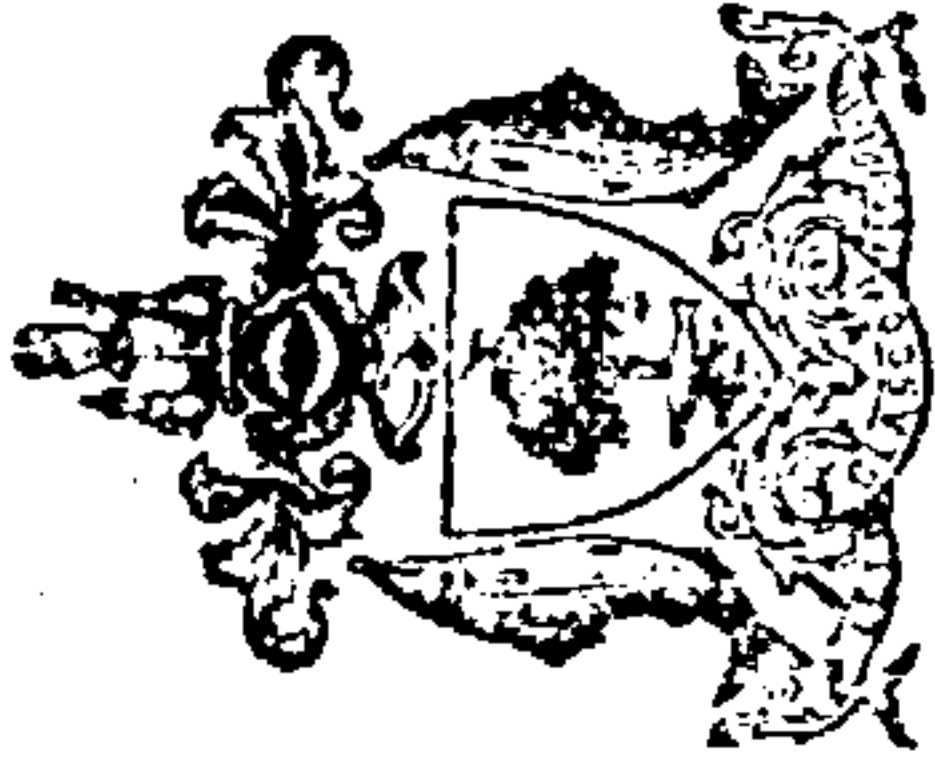
No advice can be of the slightest use unless you, the parents—or you who assume the duties of parents—of this child honestly resolve to let no selfish motive of convenience, or pleasure, or profit divert you from that which must be your first thought in the morning, and last at night—to cherish and make healthy and happy the life which is so unreservedly put under your control. You must make up your minds to sacrifice yourselves for it, and do as you would be done by if you were equally dependent and helpless. The mother especially must remember that at least for the first year of this child's life she must devote herself body and mind to it. Any reason or argument for shirking the duty of suckling must be looked upon with suspicion however plausible. A woman who can suckle her child, and will not, increases a hundred-fold the risk that child runs of losing its life, and, should it die, to that extent she causes its death.

J. B. R.

SANITARY OFFICE,
1 MONTROSE STREET, GLASGOW.

REVISED MAY, 1894.

N.B.—FREE VACCINATION, at the Sanitary Office, every
Tuesday and Friday, at One o'Clock.



ABOUT

INFECTIOUS DISEASES.

The Committee of Health of Glasgow, in order to remove all cause of ignorance in cases of contravention of the various Acts of Parliament regarding Infectious Disease, and in the hope that a wider knowledge of those Acts will promote their general observance, beg the attention of the Public to the following short statement, in plain language, of the Law about Infectious Diseases, and the Penalties which will follow its infringement:—

NOTIFICATION.

Every head of a family is required, under a penalty not exceeding forty shillings, to report immediately to the Medical Officer of Health every case of infectious disease to which the Infectious Disease (Notification) Act, 1889, applies, occurring in his household. In his absence the duty falls in succession upon the nearest relative, the person in charge, and the occupier.

In Glasgow, "Infectious Disease," as regards Notification, means Smallpox, Cholera, Diphtheria, Erysipelas, Scarlet Fever, Typhus, Enteric, Relapsing and Puerperal Fevers. Other infectious diseases may be added from time to time, but of this due notice will be given.

N.B.—As regards all subsequent sections of this pamphlet, "infectious disease" includes any disease which is infectious, so that these sections apply not only to the above diseases, but to Measles, Hooping-cough, &c. The attention of parents and teachers is specially directed to this statement.

REMOVAL TO HOSPITAL OF INFECTED PERSONS.

Any infected person lodged in a room occupied by others besides those in attendance, or on board ship, or who is otherwise without such accommodation as will enable said person to be treated with due regard to the public safety, may be removed to hospital under warrant of the Sheriff, or any Magistrate.

REMOVAL TO RECEPTION-HOUSE OF HEALTHY PERSONS FROM INFECTED HOUSE.

If it should be thought inexpedient to remove an infected person so lodged to hospital, all inmates not in attendance upon him may in like manner be removed to the Reception-house.

If infectious disease occurs in any overcrowded house, which cannot be thoroughly disinfected while the inmates remain therein, or in any house the inmates of which are unable to provide a change of clean clothing or bedding, any Magistrate may also grant a warrant for the removal of those who are yet well to the Reception-house, and their detention there until the house and all their bed and body clothing have been cleansed and disinfected. Such persons have the loan of clean clothing, and are at liberty to go to work.

WASHING AND DISINFECTION OF INFECTED ARTICLES.

Any person who uses a washing-house, or washing-green, provided for the common use of two or more tenants, for washing, bleaching, or drying any bedding, clothing, or other articles which have been exposed to infection, without previous disinfection at the place provided by the Commissioners of, otherwise as duly certified, is liable to a penalty of forty shillings.

The occupier of any house in which any infectious disease has occurred is required, under a similar penalty, either to cleanse and disinfect all articles therein likely to retain infection, to the satisfaction of the Medical Officer or a registered medical practitioner as certified by him in writing, or to permit the officers appointed by the Commissioners to remove them for that purpose.

DISINFECTION OF HOUSE.

The occupier of a house in which any infectious disease has occurred is in like manner required, under penalty, to cleanse and disinfect the interior thereof, or to permit the officers appointed by the Commissioners to do so.

LETTING INFECTED HOUSE.

It is illegal to let any house, or part of a house, in which infectious disease has been, previous to disinfection of the house and all articles therein likely to be infected. A hotel is included under the term "house." Penalty £20.

WAKES NOT TO BE HELD.

It is not lawful to hold a wake over the body of any person who has died of any infectious disease. The occupier of any house who permits any such wake therein, and every person taking part in any such wake, is liable in a penalty of forty shillings.

DEAD BODIES.

Any dead body of one who has died of infectious disease, which is kept in a room in which persons live or sleep, may be removed, by warrant of the Sheriff or Magistrate, from said room to any place provided for the reception of dead bodies, and there retained until burial.

Any dead body of one who has died in hospital of infectious disease shall not be removed except for immediate burial, and when removed shall be taken direct to some place of burial.

Any body of one who has died of infectious disease shall not be removed by railway, steamer, or other public conveyance,

until the Medical Officer has certified that every precaution necessary for the public safety has been adopted. Any undertaker or other person who shall contravene, or assist in contravening, this enactment, is liable in a penalty of £10.

CHILDREN ATTENDING SCHOOL.

“Every parent or person having care or charge of a child who is or has been suffering from infectious disease, or who resides in a house where such disease exists or has existed within a period of six months, who shall knowingly or negligently permit such child to attend school without procuring and producing to the teacher or person in charge of such school a Certificate from the Medical Officer, which he shall grant free of charge, or from some registered medical practitioner, that such child has become free from disease and infection, and that the house and everything therein exposed to infection have been disinfected to the satisfaction of the Medical Officer or some registered medical practitioner, or the Sanitary Inspector, shall be liable to a penalty not exceeding forty shillings.”

TEACHERS PERMITTING CHILDREN TO ATTEND SCHOOL.

“Any teacher or person in charge of any school, who shall knowingly permit any child to attend such school in contravention of the above provisions, shall be liable to a penalty not exceeding forty shillings.”

N.B.—These enactments apply to schools of every kind, public or private, Industrial, Sunday-schools, &c.

INFECTING PUBLIC CONVEYANCES.

It is illegal for a person suffering from any infectious disease to use a cab, tram-car, omnibus, railway carriage, or any other public conveyance, without informing the person in charge thereof, who may then refuse to convey them. **Penalty, £5.**

It is illegal for the owner or person in charge of a public conveyance, which he has permitted to be used by an infected

person, to hire or to put it to public use until it has been disinfected. **Penalty, £5.**

PUBLIC EXPOSURE OF INFECTED PERSON.

It is illegal for any person suffering from infectious disease to go, or any one in charge (as, for instance, a parent whose children are ill of Scarlet Fever) to take or send such a person to any public place, such as to school, church, market, to a dispensary, to a common stair, street, court, or play-ground, or any place where the public will be endangered. **Penalty, £5.**

PUBLIC EXPOSURE OF INFECTED THINGS.

It is illegal to give away, lend, sell, transmit, or otherwise bring into contact with the public, any article or thing which has been “exposed to infection.” The following are a few illustrations of modes in which the law may be broken in this respect:—

1. By washing, or sending to be washed, infected clothes in public washing-houses, or by drying the same in public greens, if washed and not disinfected. *N.B.*—All washing-houses and greens provided for the use of more than one family, as in tenement houses, are “public.”

2. By sending infected bedding to upholsterers or to public dyeing and cleaning establishments.

3. By persons who work in a house where infectious disease exists and send articles to shops, warehouses, or private parties, e.g., dressmakers, tailors, shoemakers, shirt-sewers, muslin-clippers, knitters, shawl-fringers, &c., &c.

4. By persons who sell goods from a house, or shop where infectious disease exists, e.g., all dairies or milk-shops, all grocery and provision shops, confectioners' and toy shops, &c., &c., forming part of a dwelling-house where there is infectious disease.

5. By persons who pawn infected bedding, clothing, or other articles from a house where infectious disease exists.

The penalty for all offences of this description is £5.

DUTIES OF MILK-DEALERS.

It is illegal for any person who suffers from infectious disease, or who has recently been in contact with a person suffering from infectious disease, to milk cows, or to handle vessels used for containing milk for sale, or in any way to take part or assist in the production, distribution, or storage of milk for sale.

The results of any violation of the law in this respect are likely to be so serious, by spreading disease far and wide among the consumers of the milk infected in consequence, that the penalty which may be exacted is very high—viz., £20.

When any outbreak of infectious disease is apparently attributable to milk, the person who supplies or purveys it may be required to furnish, so far as possible, a complete list of his customers, and, in the case of retailers, a list of the farmers or other parties from whom the milk retailed has been obtained, and such retailers shall also produce all invoices, pass-books, accounts, or contracts necessary to enable the Medical Officer to trace the infected milk to its source.

When the Medical Officer certifies that milk is being brought into the City from any farm or place beyond the City in which any person suffers from infectious disease, or that infection may be spread by the sale or delivery of any milk within the City, wherever it may come from, the Sheriff may issue an order prohibiting the sale of such milk until the cause of the risk of infection has been removed. These enactments may be enforced by heavy penalties.

The Glasgow Police Commissioners have erected Hospitals, a Washing and Disinfecting Establishment, a Reception House, and have otherwise provided themselves with

the best means and appliances for assisting the citizens to comply with the requirements of the law.

The use of those hospitals and appliances is free to every inhabitant of the City.

N.B.—The Sanitary Office, 1 Montrose Street, is open on Sunday from 9 to 11 A.M., and from 4 to 6 P.M., and on all other days from 7 A.M. to 7 P.M. Every assistance and advice as to the management of infectious disease, so as to comply with those enactments, will be given; and any information which will lead to the conviction of parties contravening those enactments will be gladly received there within these hours.

Washing and Disinfection of clothing, bedding, &c., for which application is made before 4 P.M., will be carried out on the following morning. Applications on Saturday must be made before 12 noon.

Before the fumigation of the house and whitewashing is carried out, an Inspector will call and make the necessary arrangements.

J. B. R.

SANITARY DEPARTMENT,
1 MONTROSE STREET, GLASGOW,
17th September, 1890.

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