CHOLERA AND ITS INFLUENCE ON THE PUBLIC HEALTH MOVEMENT IN GLASGOW 1832 - 1848/49

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Dissertation submitted for the Degree of
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University of Strathclyde,
Glasgow. 1976.

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ACKNOWLEDGEMENTS

First and foremost, I thank my supervisor Dr. James H. Treble. It was his suggestion as to subject matter that influenced my course of study. Throughout the years of research, Dr. Treble has given advice, encouragement and positive criticism and his contribution has helped make this dissertation what it is. I also must thank Dr. H. Fraser of Strathclyde University for reading my work and making helpful suggestions as to how it could be improved.

Without the aid of libraries, the historian's work would be virtually impossible. I received help and assistance from many libraries both in England and Scotland and I thank them for it. Special mention must be made of the help given by the staff of the "Glasgow Room" of the Mitchell Library, Glasgow, also the librarians of the Royal College of Physicians and Surgeons and the Department of Health Library, Glasgow. I acknowledge too the sterling work done by the staff of Lanarkshire County Libraries who obtained all the books I ever requested, no matter how obscure the title.

Thirdly, I thank my sister-in-law, Mrs. E. Brough of Castle Douglas, for making such a splendid job of the typing. The typed layout certainly enhances the finished work.

Lastly, but assuredly not least, I thank my dear wife Margaret for her help and encouragement during the course of my study. It is to Margaret I dedicate this work.

Aug., 1976.

PREFACE

The Romans of the 1st, 2nd and 3rd centuries A.D. had a great knowledge of and interest in municipal affairs, for as they conquered or founded communities, their governors had to look to the welfare of numerous peoples enclosed within the walls of towns. Thus, they were most careful in the selection of the site of any new town, having regard to its situation and aspect.

The Roman historian Vitruvius, described the methods used in the decision processes before even an army camp was built. A religious rite was performed and the livers of sacrificed animals were examined to see if the water and soil of the area were of a health giving quality. When the town was laid out, great care was taken to position the drains and sewers correctly. Local laws enforced sanitary and public health measures and so prevented anyone interfering with the general good of the community. In Rome itself, every home had a constant supply of water as well as drainage to a common sewer. Municipal concern in sanitary matters was to pass with end of the Roman Empire and so far as Glasgow was concerned, the "Dark Ages" were to last till well on in the 19th century.

The city of Glasgow in the 19th century was changing as a result of the coming of the "Industrial Revolution". It emerged from a primitive economic condition to become one of the greatest industrial cities in the United Kingdom. As the city grew, it experienced stresses and strains which could not be dealt with by the existing social and administrative machinery. The worst effects of uncontrolled growth were not experienced till after the Napoleonic Wars, then a number of interrelated factors came into play to produce frequent epidemics and increasing death rates. As typhus fever

killed more and more wage earners, their families had to be provided for from public funds, so the authorities were forced to pay attention to municipal affairs as the Roman authorities had done centuries before. The coming of Cholera in 1832 heightened this concern, for the sharp impact of Cholera on the city forced the corporation to carry out public health measures in order to limit the disease's progress. Moreover, Cholera could attack both the high born and the lowly, for unlike typhus, which was generally a disease of the poor, Cholera was no respecter of rank. The public health reform movement developed both in Scotland and England, and its first real successes were the Scottish Poor Law Amendment Act of 1845 and the Public Health Act of 1848 for England and Wales.

Chapter one of this dissertation describes the growth of Glasgow from the late 18th century till about 1850. Increasing immigration and population growth produced a demand for housing which was not met by speculative builders. The overcrowding which resulted, produced insanitary living conditions and both these conditions were neglected by the authorities. Free enterprise capitalism experienced the trade booms and slumps which were to be experienced at intervals throughout the future. Poverty, during the slumps, was to produce the other factor, which together with overcrowding, insanitary conditions and a lack of water supply, resulted in the increase of epidemic disease and rising death rates within the city.

Chapter two traces the movements of the Cholera epidemics of 1832 and 1848/49 and describes the full impact of that disease on the city. It tries to capture the dramatic nature of the disease and describe its effects on the behaviour of the people and the Corporation of Glasgow.

Chapters three and four examine the city authorities efforts to

deal with the increasing destitution and disease among the citizens of and the immigrants to Glasgow. The development of public health measures over the period is described both at local and national levels. The final chapter describes Cholera as it affected other cities throughout the United Kingdom and relate and compare their experiences to Glasgow's. A brief examination of water, housing and other amenities in the Northern England cities of Leeds, Liverpool and Manchester is made in order that a comparison can be made with Glasgow.

Disease, with special reference to Cholera and public health in the City of Glasgow, are the main subjects of this dissertation.

Chapter I

"THAT DEAR GREEN PLACE"[1]

Glasgow in the 18th century had a reputation for being one of the most beautiful and elegant cities in Britain. In Daniel Defoe's oft' quoted description, it was described as, " ... 'tis one of the cleanliest, most beautiful and best built cities in Britain,"[2] and such a compliment was not lightly bestowed. By mid 18th century, the new section of Glasgow was forming and three areas of new houses and elegant streets were being built near to George Square on the west, in the new town of Blythswood at Garnethill and on the south side of the River Clyde at Laurieston, the Gorbals of today.[3]

At this time, the prosperous merchants and burgesses of the city lived in the High Street, Briggate, Saltmarket and Wynds. Orchards flourished in the Candleriggs and between the city and the villages of Anderston and Bridgeton were farms and market gardens.[4] But with the completion of new middle class housing in the newly developed areas, the well-to-do vacated their homes and the poorer classes moved in.

This pattern of development was linked to economic growth consequent on the Act of Union of 1707. Glasgow was able to make use of her substantial geographical attributes, for once Scotland was freed from the pre-Union trading restrictions, Glasgow merchants conducted a vigorous trade with Britain's colonies in America. Wealth from this source was to provide a base for Glasgow's "Industrial Revolution". Favourably located to take advantage of developments in the cotton industry, spinning quickly developed within and around the city. The weaving side of the industry expanded too and was well established by the early part of the 19th century. Evidence

for this growth is readily available from the extant statistical sources. Imports of cotton wool rose from over 200,000 lbs. in 1778 to over 1,500,000 lbs. in 1788 and nearly 7,550,000 lbs. in 1801.[5] Growth in the textile industry was followed by developments in associated processes such as bleaching, dyeing and printing. During the course of the 19th century other industries developed including shipping, shipbuilding, iron and steel manufacture and heavy engineering, as the city's economy became more diversified.

It was the advent of the "Industrial Revolution" with its associated sprawl of industry and the unchecked rise of population which put paid to Glasgow's reputation as a beautiful city. Growth in Glasgow produced some of the worst social problems which any city has had to face. A substantial increase in population from an estimated 31,700 in 1755 to 147,000 in 1821,[6] soon led to overcrowding, insanitary living conditions, public health problems and epidemic and endemic diseases. More important, Glasgow had no social or administrative machinery to deal with these problems and public opinion could not yet see the link between industrial development and the deteriorating state of the urban environment.

During the period after Waterloo, the consequences of unregulated growth were made evident. Destitution was increasing within the city and with poverty and overcrowding present, epidemics of increasing severity pushed up death rates. Epidemics of Typhus or Cholera also interfered with the workings of the industrial machine, for dead and sick operatives had to be replaced, while widows and orphans had to be provided for from the poor rates. By the 1830's therefore, socially conscious elements in society began to concern themselves with the "condition of the people" question and the appearance of the dread "Cholera Morbus" in 1832 heightened this concern. A movement appeared

in England, led by Edwin Chadwick, whose aim was sanitary reform. In Scotland on the other hand, the public health question became entangled with the Poor Law issue. But whether men believed that disease was caused by bad drains or poverty, a public health movement gradually spread in Britain during the 1830's and 1840's. Some support for this movement was to be found in Glasgow.

One

The Rise of Urban Death Rates after 1820

During the years of the Napoleonic Wars, while the economy was buoyant, with a considerable increase in speculative building for instance, conditions were such that there was an improvement in the general level of public health, except among children. There was a low level of fever patients, whether enteric or typhus, being admitted to Glasgow Royal Infirmary throughout the war period (See Table I below).[7] Smallpox, which had been prevalent from 1783 onwards and caused great mortality among the under tens,[8] was on the decline during the first two decades of the 19th century.[9] This trend was partly promoted by the work of a charity vaccination organisation, which carried out 14,500 vaccinations between 1801 and 1810.[10] But overall the mortality rate among children remained high with whooping cough providing a steady cause of death.[11] Measles too was a recurring disease, but it was never so bad as it was in 1808 when it caused 787 child deaths, the worst months being May and June with 259 and 260 deaths respectively.[12]

These diseases, even when infectious, assumed no public importance as the ordered life of the community was not threatened in any way,[13] but by 1816 this situation was to change. From 1816 till the early 1870's, the closes and wynds of the city were to be devastated by recurring epidemics of infectious diseases of various kinds.[14]

The destitution in Scots towns in 1816 and the years following, brought in its train an epidemic of Relapsing Fever, a mild form of Typhus, which proved to be particularly severe in its incidence in Glasgow. 1,371 cases were admitted to Glasgow Royal Infirmary in 1818, while a new fever hospital had to be opened at Spring Gardens as the infirmary could not handle all the cases.[15] Furthermore, the number of fever cases and the number of admissions to Glasgow Royal Infirmary was to increase greatly from 1818 onwards.[16] Relapsing Fever continued to take its toll during the 1820's and smallpox returned to a level not seen since the 1790's.[17] A bad outbreak of Dysentery in 1827 caused death in one out of every fifty cases.[18] Mortality figures increased but the levels were low compared to those experienced in the 1830's and 1840's.

Typhus Fever had always prevailed in the city, usually in its milder form, 'Relapsing Fever.' However by 1830 a change in the type of typhus was obvious[19] for by that date the disease assumed the characteristics of "Typhus Gravior". This fever assumed an endemic, then epidemic form and by 1835, 75% of all fever cases were of this type.[20] The disease struck hard at the poor of the city, particularly those living in the densely populated areas around the High Street.[21] There was an epidemic in 1837 causing 2,180[22] deaths. Typhus returned again in 1841, in a form more fatal than before.[23] Relapsing Fever produced an estimated 33,000 cases in 1843[24] forcing 19,058 to seek medical relief from district surgeons.[25]

The worst incidence of Typhus was that which followed the potato famines in Ireland and Scotland in 1846 and 1847. This epidemic was the worst ever to affect Glasgow and nearly 9,000 died of the disease in 1847.[26] A major public health problem thus arose with which the city authorities were barely able to cope. By June 1847, the fever

was raging in the city, the hospitals were crammed with patients and many who needed hospital treatment could not obtain it.[27] Most homes in the poorer districts were affected and in one building at 15, College Street, every house had two or more cases of Typhus.[28] Creighton's figures of Typhus cases give some idea of the scale of the problem.

Admissions to Glasgow Royal Infirmary

	Relapsing Fever	Typhus
1846	777	500
1847	2,333	2,399
1848	513	980
1849	168	342 [29]

The effects of the increased incidence of disease are revealed in the rising death rates in the city. In the five year period 1825 - 1830, the Glasgow general death rate was 1 : 41[30] or 24.4 per 1,000 population. In the period 1835-40 it had risen to 1 : 31 or 32.3 per 1,000. These averages hide the stark reality of the picture for the cholera year of 1832 when the figure was 50 per 1,000[31] and that of 1847 when a level of 54.9 per 1,000[32] was recorded. Furthermore, child mortality was rising. This upward trend was reflected in the returns for deaths from smallpox, measles and scarlatina, a severe epidemic of the last disease affecting the city in the summer and autumn of 1848.[33]

The factors which produced this deterioration in public health in Glasgow at the beginning of the 19th century are varied. But an analysis of these adverse influences is essential, if one is to understand why death rates rose during the 1830's and 1840's.

By the end of the 18th century and during the first decades of the 19th century West Central Scotland experienced a substantial growth in population, as revealed by population estimates and census

returns.[34] These changes, encapsulated in statistical form in Table III, can in part be accounted for by changes in the birth and death rates and after 1780, by net immigration to the West of Scotland. The average percentage increase in population of Scotland during each decade of the first half of the 19th century was about 12½%; in the case of Glasgow the figure was almost 34%.[35] Glasgow's share of Scotland's rising population rose from 5.1% in 1801 to 11.5% in 1851.[36] Some of this increase was of course accounted for by immigration from the Western Highlands and Ireland.

In the late 18th century, as "The Statistical Account of Scotland" makes clear, many Irish were landing at Portpatrick and moving from there to the neighbouring counties of Kirkcudbright, Dumfries and Ayr in search of farm work.[37] But with the broadening industrial base in the West of Scotland, the need for cheap labour in the major growth areas also grew apace. Irishmen and Irishwomen were employed in substantial numbers in many different industries. The coal and iron mines took them, "... as the Scots were reluctant to enter the mines."[38] Two thirds of the employees at the Glasgow docks were Irish.[39] 291 of Messrs. Houldsworth and Sons' 429 mill workers were Irish or of Irish descent[40] and many of the workers employed in contract work on roads, canals or railways were Irishmen.[41] Encouraged to come to Scotland, either to escape poverty and low wages at home, or attracted by the prospect of better job opportunities, thousands of Irish were to come to this country during the 19th century. By 1826 it was estimated that there were 40,000 Irish in Glasgow and its immediate vicinity and by the 1840's, "...50,000 were arriving annually packed like cattle into filthy boats at 4d. per piece."[42]

Smaller numbers of Highlanders emigrated to Glasgow, but

considerable emigration from the north occurred after the failure of the Kelp industry in the period after 1815 and during the periodic depression in the fishing industry. Low profits from crofting forced many to desert the highlands or brought them to the city in search of seasonal work in order that they might eke out a miserable living. Some of the better educated found work as shopmen in warehouses, light porters or clerks in counting houses,[43] but many ended up as labourers living the same kind of deprived existence as the Irish.[44]

But it was not until the late 1840's that Glasgow was to experience its most substantial tides of immigration. For years in the 19th century, the population of Ireland had been increasing at a fast rate, in Munster it was up by 15% and in Connaught by 21% between 1831 and 1841.[45] With 64% of the population employed in agriculture and most of these in holdings of less than five acres,[46] "... they could never contemplate anything beyond potatoes sufficient to feed their families, a cow or some goats, five or six half-starved sheep."[47]

Poverty was endemic in rural Ireland, so the Irish agricultural labourer found employment on average for only 135 days a year, earning only about 2/3d. per week.[48] In some areas the small tenant farmer fared little better. A sign of this in the district of Guidore, County Donegal, were arrears of rent of eight, ten and even twenty years standing.[49] So precarious was the existence of most Irish people that the first great crop failure, if continued for any time was bound to have very grave effects which would break up both the social and agricultural system of Ireland.

Ireland had experienced famines before; in 1739 an early frost

destroyed the potato crop, while in 1740 and 1741 the calamity continued and was so prolonged that 1741 was known as "bliadhain an air" - year of slaughter. In 1822 the crops of Munster and Connaught failed owing to continued and excessive humidity and in 1831 another failure occurred in Galway, Mayo and Donegal.[50] The "Great Hunger" which was to afflict Ireland had manifested itself in 1844 and spread to the British Isles in 1845, spoiling the late crop when it was at an advanced state of maturity. In 1846, the potato blight came earlier and was of a much more sweeping and decisive kind[51] and the situation grew worse in 1847. Little effective action was taken to help the people in their distress, while much was done to make them flee their homes. J. E. Handley estimates that altogether one and a quarter million peasants died of starvation and fever during the famine years.

Glasgow was thus hit by a wave of destitute and fever ridden Irish immigrants who flocked there, "... to seek asylum and a grave."[52] Many of these immigrants, who had to be five years in the country before acquiring a residence for Poor Law purposes, were dying of slow starvation, "... emaciated, squalid and ragged."[53] Many too landed, exhibiting the symptoms of "famine fever."[54] Since they sought accommodation in lodgings, where as many as eight to twelve were living in one apartment, the disease was bound to spread quickly. These poor and sick Irish, placed a terrible burden on the authorities. (see below Ch.III) They had to provide 1,260 places for poor Irish in public institutions and nearly 50% of all fever cases admitted to hospitals were Irish.[55]

One school of thought attributed the rising incidence of disease after 1820 to Irish immigration, "The Irish in Birmingham are the

very pests of society ... they generate contagion",[56] but this is too simplistic a view. However, the movement of many thousands of Irish and other immigrants to Glasgow would in itself produce an increase in death rates and increases in the order of 26% for the Gorbals, 24% for the Barony and 21% for the City were reported for the years 1841 - 1851.[57] This increased population also placed a tremendous strain on housing, sanitation and water supplies and any deterioration in the quality of all three sectors would add to these death rates.

Two

The Trade Cycle and Unemployment

Dr. Cowan argued that the prevalence of epidemic disease depended on various causes, but the most influential of all was poverty and destitution. In all the epidemic fevers which affected Glasgow, the progress of the disease was slow unless extreme poverty existed side by side with the epidemic.[58] By the 1830's, disease and destitution had become recognised as inter-related phenomena and they operated in a vicious circle alternately as cause and affect.

As previously stated, Scotland experienced an 'industrial revolution' during the late 18th and first half of the 19th centuries. The changing economic scene produced a curious anomaly, for as industry developed in power and production great fortunes were made by merchants and industrialists alike. But alongside their wealth there was a growing army of poor and socially deprived. In seeking explanations for this trend, one must examine the nature of the 'industrial revolution' and its affects on society. The revolution was a protracted affair and during its course one industry would be driven out by another and one industrial process replaced by a new technique. The most obvious industry which such change affected was textiles. The 18th century linen industry, which at one time was a most important

industry to Scotland, was superseded by cotton by the end of the century. The first cotton manufacturies were for spinning, but as the "Power Loom" came into more general use after the Napoleonic Wars, the weaving side of the industry came to be more factory based. J. C. Symons in "Reports from the Assistant Hand Loom Weavers Commissioners" reported that of the 9,350 looms in Glasgow in 1839, 1,580 were located in factories.

As industry became mechanised and factory based, the domestic sector of the textile industry was gradually made redundant. First it was those who operated "Spinning Jennies", but the greatest and most protracted agony was experienced by the hand loom weaver. Except for specialised jobs, his work was taken over by the "Power Loom" and by the 1830's many hand loom weavers were experiencing real poverty. The extent of this poverty can be measured against the declining value of the hand loom weaver's labour.

> "In 1792, in the counties of Lanark, Ayr, Renfrew and Dumbarton there were 30,000 weavers earning an average of 2/- per day ... and 2,000 warpers and warehousemen at 2/- a day ... there were weaving families who during the cotton boom could earn £3 to £5 per week." 59

By the 1830's, this situation had deteriorated markedly. J. C. Symons reported that in Glasgow the weavers wages, after expenses in putting up a web, were only 4/- to 5/- per week. Top grade muslin weavers on the best class of work earned from 6/- to 8/6d., while those on second grade work earned a pittance of 4/- to 6/-.[60]

Another recurring phenomenon of the industrial economy was the trade depression. Where finance and industry were imperfectly adjusted to demand, there was industrial instability which produced recurring periods of boom and slump. The reasons for this

instability are many and varied and cannot be examined here, but the affects of trade depression areimportant to the understanding of the poverty problem. There were frequent depressions during the 19th century, 1810, 1816, 1825/26, 1829, 1832, 1837, 1840-42 and 1847 were all years of acute economic difficulty. These depressions affected the working class adversely, for not only were they faced with loss of employment, such periods also often coincided with bad harvests, which, in turn, produced rising food prices, at times when wage rates were falling. At such times many thousands were forced to seek poor relief and this problem of provision for the poor was a formidable one.

In Scotland, at the beginning of the 19th century, the Church was the chief provider of relief. With growing numbers of poor to be provided for, the Church found greater difficulty in providing relief for Church sources of income were limited to church collections, extra collections at communions, funeral dues, seat rents, fines imposed for moral lapses among churchmembers and mortifications for the benefit of the poor.[61] Relief was also given by local authorities, whose actions were governed by the Poor Law of Scotland, which was based upon a Statute of 1579. This Statute allowed the poor to be provided for out of public funds. Burgh corporations had a duty to draw up an annual poor roll of "deserving" poor, defined as young persons under fourteen, the aged over seventy and poor, impotent and decayed persons. It was a duty to provide for such as these. Power was given to assess and tax property in the parish in order to provide for the poor, the rate in Glasgow being from 3/- to 5/- per £100.[62] In order to get poor relief the "deserving" poor had to have a settlement for more than five years

but even those who qualified did not receive munificent allowances. In 1801 pensioners at the Town Hospital were receiving 10/- to 30/- per quarter year or 6 lbs. to 12 lbs. of meal per week.[63]

After the Napoleonic Wars, this existing poor relief system was put under severe strain at times of depression. Town corporations were forced to raise money by charitable subscription - Glasgow raised £9,079 to aid the poor in the post war depression of 1816-17.[64] But this was not enough and so Relief Committees were forced to provide work for the unemployed;[65] in the period 1837-39, 3,072 were given work through this kind of agency. Another form of relief was the provision of soup kitchens for the destitute. These were used extensively during the 1832 Cholera epidemic and again during the depression of 1837-39.[66] The "Glasgow Herald" writing about the poor in 1837, reported that,

> "never before did we witness such real misery; never before did we witness such ... marks of hunger and starvation in the countenances of the hundreds of women and children present." (at the soup kitchens) 67

But such relief was often inadequate and did not afford any assistance to the "unrelieved", but poverty stricken, families, 2,000 of whom were to be found in the city in 1841. Families on relief in 1841 were getting 1/- per family per week[68] but since this sum was insufficient to sustain a subsistence diet, families were either being inadequately nourished or some were turning to crime in order to be sent to prison where they would be properly cared for. In 1842 in the Glasgow Bridewell there were 200 such cases and 40 more were, "voluntarily undergoing imprisonment in order to get food and shelter."[69] Thus, the condition of the poor prior to the passing of the Poor Law Act of 1845 was such that it urgently called for reform. That statute, however, was too restricted in its scope to

provide any lasting solution to the poverty question. Evidence of its inadequacy can be obtained from the famine year of 1847, which coincided with a trade depression. Hundreds of thousands of people were bordering on starvation. Food prices soared, with the price of meal increasing from 18/- to 30/- per boll.[70] There were food riots in many parts of Scotland - in the North East areas the people attempted to prevent the export of grain and meal, in Glasgow there were raids on food shops.[71] In the city the number of beggars increased, there being 11,059 people unemployed and 7,634 partially employed.[72] Again the authorities resorted to temporary relief measures with soup kitchens and relief work provided. However, the scale of this poor relief was grossly inadequate, -

> "A miserable pittance of 1d. per day is given to the unemployed ... the ration at the soup kitchen is small ... 4 portions of soup and 4 scones given to a family of six every second day," 73

while the Court of Session decided that the children of the able bodied poor were not entitled to relief.[74] From the foregoing, it can be seen that the Poor Law in Scotland was too restricted to mitigate the effects of destitution and such destitution weakened the resistance to disease of working class people.

Three

The Increase of Overcrowding

In the first half of the 19th century conditions in the central areas of Glasgow underwent a rapid deterioration in the housing sector. The speed at which the town grew, further worsened its sanitary condition. Workers' dwellings sprung up around the factories, built in the search for quick profit by a group of speculative builders, who, unrestrained by any building regulation, erected buildings without displaying any concern about broad questions of

social amenity. Other workers were housed in older property, - the former homes of the middle class, - which, after having served as mansions, were divided and subdivided to suit the needs of the new class of tenant. Whatever type of house the worker lived in, its usual mode of access was the common stair,

> "... a receptacle for foul air, usually closed in at the top and receiving the effluvia from all the houses in the stair, the lobbies of the individual houses being internal ... and therefore close dark and stifling." 75

Cellar dwellings, such as those in St. Andrews Street were also quite common. Their roofs were level with the street and the doors, "... entering from a dark damp passage into which the pure streams of the Molendinar Burn flow in very wet weather and inundate the houses."[76] But even ignoring the special problems of these St. Andrews Street cellars, cellar dwellings were generally unhealthy places. At night and in winter when windows - if any - were closed, the house temperature rose higher than the ground below the house. This encouraged "ground air" to rise into the cellar dwelling carrying with it any harmful gases present in the soil.[77] The tenants of the type of housing, being tenants at will, took care not to clean or improve their houses for fear that their rents would be raised. On the other hand, if they fell behind with rent for one week, they would be evicted.[78]

With the great influx of population to the city the housing problem was exacerbated. Overcrowding became the biggest single housing problem. In 1831 only three of the City parishes were capable of receiving any additional houses with any degree of convenience.[79] While Glasgow's population increased by 33,031 in the decade 1831 - 1841, the number of houses increased by 3,551[80] with

all parishes but one showing additions, as seen in Table IV. Overcrowding was thus bound to increase; by 1841 it had become a pressing social evil and the worst evidence of it was to be found in and around the centre of the city,[81] (See Table V.) A most revealing item in the 'Glasgow Saturday Post' highlighted the nature of the problem when it occurred in its most extreme form.

> "In one tenement, 77 New Vennal, there were about one hundred apartments into which were crowded 78 men, 352 women, 169 of whom were prostitutes and 180 children - in all 610 persons." 82

Wherever this form of overcrowding existed alongside filth, squalor and poverty, it was inevitable that disease became epidemic in its nature. One commentator after another pointed an accusing finger at the source of much infection. Dr. Cowan, in 1837, argued that much of the fever then raging was due to the want of cleanliness among the poor, absence of ventilation and the accumulation of filth.[83] Dr. Neil Arnott, in 1840, spoke of ,

> "no privies or drains there and the dunghills received all filth which the swarm of wretched inhabitants could give and we learned that considerable part of the rents of the houses was paid by the proceeds of the dunghills." 84

In 1844, Dr. R. Perry talking of the fever epidemic of the year before highlighted, "The overcrowded state of the victims' houses, families of six, eight and ten individuals crowded into one small apartment."[85] But the Irish immigrant often compounded the problem by rearing pigs in a restricted urban environment.[86]

Common Lodging Houses

The influence of dirt and overcrowding in the spread of disease was understood by medical commentators of the period. Among those who suffered most, were immigrants to the cities, predominantly country people, who were especially susceptible to urban diseases and

who were very early exposed to them. Not being able to afford good quality accommodation they were forced to take shelter in the common lodging houses, which existed in large numbers to meet the need for shelter in the already overcrowded towns. Dr. Perry puts the figure of lodging houses in Glasgow in the early 1840's at 504. They were distributed as follows, 240 between Stockwell Street and Saltmarket, 160 in the area east of High Street and 104 in other parts of the city.[87] The extremes to which overcrowding was carried within their confines can be guaged from such contemporary comments as, "A woman named Burke keeps a lodging house at 72, High Street ... There are 72 in the house which consists of two apartments."[88] The conditions inside these houses were uniformly squalid. One house of two rooms measuring 13' x 11' and 15' x 8' respectively, had 23 occupants but only 3 beds. One of the beds was in a cupboard while the other two were merely bedsteads on which was laid wood shavings covered over by dirty rags.[89]

These institutions were the media through which newly arrived immigrants found their way into fever hospitals. A large number of lodging house inmates, living in the close and squalid confines of these temporary homes, were prey to Typhus. It was noted at the time, that a large number of Typhus Fever patients in the Royal Infirmary were recent arrivals to the city and had been living in lodging houses since their arrival.[90] Although the need for some legal control of lodging houses was recognised early in the century, it was not until the 1840's that the first measure was placed in the Statute Book (see below Ch. III)

Four

Sanitary Conditions

Dr. Cowan stated that after destitution, the next most important

cause of disease was the state of the districts inhabited by the poor. In all burgh and suburban districts there was a need for sewers and drainage. The streets, lanes and alleys off the High Street were indescribably filthy.[91]

Scotland had a tradition of dirt and squalor dating back centuries, but with the expansion of towns in the 18th and 19th centuries, the sanitary situation assumed massive proportions. The problems created by the lack of drainage and street cleaning were the obvious ones of cesspools, ashpits and pavements scattered with refuse of every description. However, the most telling problem was that presented by the lack of privies or lavatories. 'Fulzie' was disposed of in a way that showed a complete lack of concern for the community that one lived in. It was thrown onto common stairs or out onto the street, or it was taken out to the backcourt and there stored until a large enough pile was collected which could be sold as fertiliser. There are many contemporary and lurid pictures of filth which convey the extent of the problem. As one commentator wrote,

> "There are large square midden steads, some of them actually under the houses and all of them in the immediate vicinity of the windows and doors of human dwellings. These receptacles hold the entire filth and offal of large masses of people and households, until country farmers can be bargained with for their removal." 92

The stench arising from these middens and the myriads of flies which would breed there, carried with them the germs and filth which produced disease. These middens also were sources of noxious gases, for fermenting dung produces both carbonic anhydride and marsh gas.[93]

Yet if the social problems were there, Glasgow had various Police Acts to deal with them. (see below Ch. Four). Unfortunately,

for various reasons the Acts were ignored or not enforced. The Police Act of 1800 stipulated that householders had to clean the pavements daily, remove nuisances from the pavement, erect water pipes to carry off rainwater, etc.,[94] but courts were not willing to issue summonses and the corporation was not willing to prosecute. The problem of dirt remained for much of the century, except for periods of epidemic cholera, when frantic efforts were made to clean streets and clear up courtyards (see below Ch. IV). From 1870 onwards the situation improved, but the newly appointed sanitary inspector for Glasgow in his first annual report of 1870, gave details of over seven thousand complaints, mainly about dirt.[95]

Street refuse was supposed to be carried away by surface drains or "syvers", but these became stagnant and their contents putrid and decomposing.[96] Under the 1800 Police Act, the Glasgow Corporation had powers to promote sewerage schemes, "... for the convenience and health of the inhabitants who had greatly increased in number,"[97] but the corporation members used this power sparingly. Prior to 1790 there were no common sewers in the city, but in that year the New Town Building Co. constructed a sewer from George Square to St. Enoch's Burn. Between 1809 and 1812, sewers were extended to include Stockwell, Jamaica and Buchanan Streets[98] and by 1832 there were 7 miles and 56 yards of common sewer in use in 45 streets.[99]

The foregoing description might indicate that Glasgow was increasingly concerned about drainage. But such was not the case for there was a deficiency of sewers in working class districts where the need was greatest and Camlachie, Westmuir, Parkhead and Springburn were outside the sewerage system completely.[100] Since it was illegal to connect house drains to sewers,[101] slops and waste water

contaminated the surface of the ground, while liquid filth, oozing from cesspits, saturated the subsoil and polluted the wells and springs from which drinking water was drawn.[102] Later, when water was supplied to cisterns to supply water closets, the waste water went straight from the lavatory pans to cesspits, causing them to overflow. Sewers were laid from watercourses or rivers along the streets in order to carry off surface water, but little attention was paid to their direction, shape, fall or capacity and in consequence most of them were inadequate for future extension.[103]

Thus drainage was deficient, badly sited and poorly shaped to do the job intended. Being flat bottomed and too large, the liquid discharged into sewer pipes did not have the required pressure to force on solid matter which found its way into them. Faecal matter accumulated in the pipes and decomposed. During the decomposition process, noxious gases were given off, which passed up the drains into streets and houses, helping to produce fevers.[104] The sewage, which was untreated, was diverted to the Clyde, which in consequence became, "an elongated cesspool."[105]

Five

Burials

There were Corporation regulations to control burials at cemeteries belonging to the city. Section VI of "Regulations for the Burying Grounds belonging to the City of Glasgow" of 1833, stated that, "The wardens are on no account to allow any burial in either private or public ground where there is not at least 1' 6" of earth above the top of the coffin."[106] Despite this rubric, one author called Glasgow, "The plague spot of city burials."[107] The reason for this indictment was that some graveyards were so overcrowded, that coffins were piled one on top of the other with just a thin

layer of soil between and on top. The stench emitted from such graves in summer was insufferable.[108] With epidemic diseases causing so many deaths in 1847 and 1848, the situation became much worse. In the Grahame Street burial ground, the foot paths were being opened up as graves.[109] At the private ground in Greenhead Street, Bridgeton, there had been 1,318 burials in 1847 and nearly 2,000 in 1848.[110] The smell of decay was so bad and the ground condition was so nauseous that the Corporation was forced to act to limit burials there. A similar situation occurred at St. Mary's Yard in Abercromby Street and after a charge was brought against Bishop Murdoch,[111] the yard was closed for burials.[112]

The most worrying aspect of the situation was that a few public wells were sited near to graveyards, at St. David's Street[113] for example, and the well water must have been contaminated by putrefying human flesh through which rain water had passed.

Six

Water Supply

Scotland's tradition for dirt and squalor is partly explained when one examines the public water supply situation. At the beginning of the 19th century in Scottish cities, water was often difficult to obtain and as public wells were fewin number, with a growing population, increasingly long waits for water and the long distances that water might have to be carried was disincentive enough to deter many people.[114]

In one's search for reasons for the rise in urban death rates, the state of a town's water supply cannot be ignored. When Koch isolated the organism "vibrio cholerae" in 1883,[115] he established the connection between the propagation of the cholera germ in human intestines and the drinking of water contaminated by human faecal

matter. Of course, cholera is not the only disease caused by bad water. There are also Typhoid, paratyphoid and the less deadly summer diarrhoea to consider. It is not just coincidence that the diarrhoeal death rate for all ages fell from 136 to 81 per 100,000 between 1855 and 1871[116] for by 1871 Loch Katrine Water was freely available.

At the beginning of the 19th century, the City of Glasgow obtained its water from twenty nine public wells, a few private ones and by water carted from a well at Willowbank.[117] These wells were erected in twenty four of the principal streets, but even by 1801, with a population of 83,769, it was obvious that the water supply was inadequate.[118] These wells and others which were sunk later, continued to be used for most of the century. The only early addition to the water supply was when in 1804 a Mr. William Hartley constructed at his own expense, a reservoir, on what is now West Nile Street, into which he conducted piped water from springs located on his land at Willowbank. He sold this water around the city from water carts at ½d. per stoup making a profit estimated at £4,000 a year.[119]

This supply, of excellent quality, was insufficient to meet the growing needs of the city. The magistrates and Town Council floated a scheme, collected subscriptions and formed a company to supply the city and its suburbs with water. This scheme received parliamentary sanction in 1806.[120] The new "Glasgow Water Co." was to take a filtered supply of water from the Clyde two miles above the city[121] and pipe it to reservoirs at Middle and New Gallowmuir, from where it would be distributed.[122] In 1808, another company "The Cranstonhill Water Co." was sanctioned[123] which took its supply from the river two miles below Glasgow. It is astonishing that any company should have been permitted to draw water from a river after it had

been through many towns and contaminated by filth and sewage. For example, a new slaughter house was erected in 1810 on ground south of Bridgegate Street. It contained seventy seven killing rooms which were flushed out by,

> "... water pipes along the sides of the killing rooms and extensive sewers carry off everything which would become offensive," 124

straight into the Clyde! The two companies carried on in competition until the 1830's when they amalgamated in 1838.[125] This company was required to supply the authorities with enough water for cleansing purposes at 10d. per thousand gallons. It supplied the city until 1846 when the Gorbals Gravitation Co. started to supply the south side of the city, taking its water from the Barrhead area.[126]

It was generally believed that Clyde water was wholesome enough and the filtration process was praised by T. Clark, a witness before the commissioners 'enquiring into the state of large towns and populous districts'.[127] But filtration was ineffective and carried out in such a way that the water was always muddy, except during continued dry weather.[128] The cost of water to the consumer was exhorbitant, 6½% of the assessed rental of the property, compared with Edinburgh's 4% and Greenock's 2½%.[129] Many people could not afford to pay the water rate and a large number of families had to have their supplies cut off. The secretary of the Water Co. stated, in 1847, the figure of families cut off was 20,200.[130] Another factor which affected the quality of the water was that of the water pipes. Too often, the pipes had been laid in shallow trenches with the consequence that during periods of warm weather, the water in the pipes became heated, then stagnated so that it became quite offensive.[131] Dr. Penny, who analysed Glasgow's water, mentioned

its offensive odour, disagreeable taste and dirty colour. He also drew attention to,

> "... myriads of animalcula start into active existence and the water becomes not only unpalatable but unwholesome." 132

With the arrival of the 1848/49 cholera epidemic concern about the city's water supply grew. Letters to the press were of two types, the first concerned with the availability of water for cleansing purposes, the second about the existing water supply. One critic wrote that,

> "The well waters of Glasgow ... are contaminated by human excretions and by fluids from the common sewers." 133

However the authorities showed no concern for the quality of water at this time, being much more fearful of the affects of another cholera outbreak. Instead of shutting off polluted water, the corporation in its concern for city cleanliness (see below chs. III and IV) debated measures to make water more freely available.[134] A sum of £500 was voted by the corporation to open up new wells and negotations with the Glasgow Water Co. led to the re-opening of 95 wells or standpipes which had been shut off by the company for non payment of water rates.[135]

Despite all the good intentions, very little was done to supply the poorer areas of the city with water. Of the corporation grant of £500, only £100 was spent and in Camlachie there was no piped supply at all. People there used rainwater or water which was pumped out of coal pits.[136] It is interesting to conjecture that by opening up disused wells the Water Co. might have been instrumental in spreading the cholera epidemic. There can be no doubt that the influence of impure water, contaminated by oozings from cesspit and

sewer, was a factor in the spread of cholera.

In the search for reasons for the rise in urban death rates, many factors have been examined. No single one can be ignored when seeking the cause of the spread of cholera, but filth, lack of sanitation, overcrowding and contamination of water must take priority.[137]

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   In MacDonald D. F. "Scotland's Shifting Population 1770 - 1850" (Glasgow) 1937 P.59, he states that in 1791 Glasgow manufacturers were using 15,000 cotton looms. By 1820, 2,000 power looms were in use and by 1845, 17,620 which represented 79% of Scotland's total. In 1839, Glasgow had 98 mills.

6. Quoted in Smout T. C., op. cit., P.261.

7. Table I

   Fever patients admitted to Glasgow Royal Infirmary.

1795 - 18	1801 - 63	1807 - 25	1813 - 35
1797 - 83	1803 - 85	1809 - 76	1815 - 230
1799 - 128	1805 - 99	1811 - 45	

   Source:-

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12. Creighton C., II, ibid., P.653.

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15. Creighton C., II, op. cit., Pps. 174 & 175.

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Table II

Numbers of Patients in Royal Infirmary

Year	Total	Fever Patients
1818	2,289	1,371
1822	1,596	229
1826	2,317	926
1828	3,133	1,511
1830	2,010	729
1832	2,974	1,589

Source:- Cowan R. "Statistics of Fever and Smallpox in Glasgow", (Glasgow) 1837, P.8.

17. Smallpox deaths:-

1838 - 388	1841 - 347
1839 - 406	1842 - 334
1840 - 413	

Source:- "Proceedings of The Philosophical Society of Glasgow", Vol. I, (1841 - 1844), P.154.

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20. Creighton C., II op. cit., P.189.

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31. Cowan R., op. cit., P.7.

32. Glaister J., op. cit., P.27.

33. Glasgow Saturday Post 26 Feb. 1848.

34. Table III

	1755	1801	1821
Glasgow	31.7	83.7	147.0
Greenock	3.8	17.4	22.1
Paisley	6.8	31.2	47.0
Kilmarnock	4.4	8.0	12.7

(thousands)

Source:- Smout T. C., op. cit., P.261.

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38. MacDonald D. F., op. cit., P.84.

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40. P.P., 1836, (40), XXXIV, P.107.

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42. MacDonald D. F., op. cit., P.83.

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44. P.P., 1841, (182), VI, P.59

45. Edinburgh Review (Oct 1849 - Apr. 1850) Vol XCI , Pps. 17 & 18.

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49. Edinburgh Review, Vol. CLXX, P.276.

50. Edinburgh Review, Vol. CLXXV, Pps.234 & 235.

51. Edinburgh Review, Vol. CLXXV, P.246.

52. Proceedings of The Glasgow Philosophical Society, Vol. VII, (1870), P.270.

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54. Glasgow Saturday Post 26 Feb. 1848.

55. Strang J., op. cit., P.19.

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59. Johnston T., ibid. Pps. 303 & 304.

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65. Glasgow Herald, 14 Apr. 1837.

66. Glasgow Herald, 12 Jun. 1837.

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68. Johnston T., op. cit., P.292.

69. Ferguson T., op. cit., P.226 and Johnston T., op. cit., P.274.

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71. There are many accounts of such riots in the press - see Glasgow Saturday Post 6 Feb. 1847 and 6 Mar. 1847.

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80. Johnston T., op. cit., P.291.

Table IV

Parish	Inhabited Dwellings		Total Population	
	1831	1841	1831	1841
North or St. Mungo's	2,197	2,838	10,295	15,677
St. Mary's	1,609	1,801	7,529	10,027
Blackfriars	1,832	2,171	7,569	10,698
Outer High	2,127	2,407	9,137	12,034
St. George's	3,006	3,951	15,242	21,192
Ramshorn or St. David's	1,276	1,529	6,268	7,993
St. Andrew's	1,187	1,385	5,923	7,501
St. Enoch's	1,667	1,589	7,921	9,008
St. John's	2,457	3,040	11,746	16,377
St. James'	1,842	2,040	8,217	11,471

Source:- Census Returns for Glasgow, Quoted in Glasgow Herald, 26 July 1841.

81. Table V

Seven most poorly housed parishes of Glasgow

Year	Total Population	Nos. of inhabited homes	Average No. of Persons per house
1831	52,564	11,540	4.55
1841	68,812	12,922	5.32
1851	79,477	14,963	5.31

Source:- J. E. Handley, op. cit., P.192.

82. Glasgow Saturday Post, 21 Oct. 1848.

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85. Perry R., op. cit., P.7.

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120. Act 46 Geo III cap. 136.

121. Glaister J., op. cit., P.6.

122. Burnet J., op. cit., P.3.

123. Act 48 Geo III cap. 44.

124. Ferguson T., op. cit., P.140

125. Burnet J., op. cit., P.8.

126. Glaister J., op. cit., P.7.

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130. Glasgow Saturday Post 9 Oct., 1847.

131. Prospectus of the New Glasgow Water Co. 1837.

132. Glasgow Herald, 5 Jul. 1848.

133. Glasgow Herald, 2 Aug. 1848.

134. Glasgow Herald, 13 Oct. 1848.

135. Minutes of Glasgow Police Cleansing Committee, 13 Oct. 1848.

136. Glasgow Herald, 3 Nov., 1848.

137. The Loch Katrine water scheme was started in 1856 and completed

on 14th October, 1859. The former Glasgow Water Co. ceased operations.

In the 1866 Cholera epidemic, Glasgow with its abundant supply of pure water suffered 53 deaths compared to London with 5,570 deaths, which was still using River Thames water.

Chapter II

CHOLERA - THAT "FASHIONABLE ARRIVAL"[1]

Man has suffered from intestinal troubles since the beginning of time. These disorders, which are usually some form of acute infective enteritis, have been written about by many medical practitioners, epidemologists and social historians, who refer to them by names including, "cholera nostras", "British Cholera", "summer or autumn cholera" or "griping in the guts."[2] Among the earliest of these medical writings are those of Hippocrates where one finds mention of the word χολέρᾳ - cholera. He recounts in his book "Epidem" Vol. V,

> "At Athens a man was siezed with cholera. He vomited and was purged and was in pain and neither the vomiting and purging could be stopped; and his voice failed him ... and his eyes were dark and hollow and spasms from the stomach held him and hiccup from the bowels." 3

What Hippocrates was describing are the symptoms of a violent form of enteritis, usually sudden and often proving fatal within forty eight hours. Epidemics of infective enteritis were frequent and Creighton highlights the occurrence of many such outbreaks a century before the first "Asiatic Cholera" epidemic of 1832. He refers to a fatal "bloody flux" in Argyll in 1717, in Edinburgh in 1734 and in Glasgow in 1736,[4] but he also mentions that two Glasgow doctors reported treating five cases of "Cholera Morbus" in the city in 1830.[5] Almost certainly these medical men were mistaken, for whatever they treated it was not "Cholera Morbus", or as it is better known, "Asiatic Cholera". This was always much more violent and deadly than its European counterpart.

"Asiatic Cholera", - its very name spread panic and excitement in 19th century Britain, - was to visit this country four times

between 1832 and 1866, each time causing many thousands of deaths. The disease was endemic in the East, particularly in an area stretching from Bombay to Southern China. But its chief home was in India. It principally affected the inhabitants of the alluvial soils of the great Indian rivers, notably the Ganges Delta. Lower Bengal was to be the standing focus of all the 19th century epidemics. Thus Cholera, it was recorded, came

> " ... from the alluvial swamps and malarious jungles of Asia where it was first engendered amid miles of vaporous poison and still broods over wasted nations as the agent of innumerable deaths." 6

In some years the disease was quiescent; then suddenly an epidemic would break out which would spread rapidly to the north and west.

The carrier of the disease was man himself, aided from time to time by the housefly. It is in the human intestine that the Cholera "vibrio"[7] is to be found. Cholera is transmitted by the "vibrio" finding its way into the intestine of another person. This usually happens when the victim takes food or drink which has been contaminated by being handled or by house flies.[8] It is not too difficult to appreciate that in filthy, overcrowded lodging houses as described in Ch. I, lodgers could easily bring their clothes and fingers into contact with a carrier's excrement or flies could move from infected stools to food.[9]

The Cholera spread westward from India by two routes. Firstly by the sea to the shores of the Red Sea, Egypt and the Mediterranean, or secondly by land to Northern India and Afghanistan, thence to Persia and central Asia and so to Russia. The 1832 British epidemic was to reach these shores by the second route. Starting in Jessore in 1817, the disease reached Persia in 1821. Russia was infected

from two directions, from China and from Persia. By 1830 Cholera was rampant in Moscow. Central Europe was devastated by the disease. Hungary had a reported 100,000 deaths between June and September of 1831 and in the latter month Cholera was in Berlin.[10]

> "From the congenial flats of Eastern Europe, ... the subtle ferment was spreading its new infection to all kindred soils." 11

It was from these "congenial flats" that Britain was to be infected. Britain carried on a considerable trade with the Hanse towns and in the Autumn of 1831 Cholera was raging in Hamburg. Evidence points to the probability of the disease being brought to this country from that port. The first official case of Cholera was noted in Sunderland on Sunday, October 23rd, 1831.[12] The disease spread northwards during the New Year and although the first deaths in Scotland occurred on 17th December at Haddington,[13] the disease was not yet severe, with only 47 cases and 18 deaths up till 14th January, 1832.[14]

Meanwhile, in Glasgow, the authorities were preoccupied with a major epidemic of Typhus. To help to meet the suffering which followed in its wake, a public meeting was held on 29th November, 1831 with a view to forming a Board of Health, " ... to provide for the suppression of Typhus Fever, which has been spreading its ravages throughout the city."[15] Almost as an afterthought, the subject of Cholera was raised and it was proposed that the Board of Health was, " ... to guard against the visitation of the calamity [cholera], to provide for the suppression of Typhus Fever and promote the welfare of this great community."[16] Glasgow's leading newspaper, "The Glasgow Herald", if not indifferent to the impending calamity, did not take its dangers too seriously either. Its columns contained few references to the epidemic and those that are located there are

largely concerned with precautions,[17] rumours,[18] daily reports of cholera cases[19] and cholera stories which must have caused alarm,[20] amazement[21] or amusement[22] among the Herald readers. The quality of advice which was proferred, varied from the sublime to the ridiculous. An injunction of the Edinburgh Boardof Health, for example, recommended that people should,

> " ... wear at all times, particularly in bad weather, a broad flannel belt round the belly." 23

In response to this suggestion, retailers were soon advertising "cholera bands" for sale, made of stocking web, fleecy hosiery or common flannel and priced at 6d. and upwards.[24] These articles were available in Glasgow by mid January, 1832. At a different level, Dr. Brown of Musselburgh outlined his daily regime to remain in good health, which was:-

> "½-glass of brandy after breakfast
> 1 glass of good port at 1.00p.m.
> 4 glasses of good port after dinner
> 1 glass of warm port or white wine at night
> at the same time keeping a regular belly." 25

But apart from press comment, books about Cholera and the treatment of the disease abounded in 1832. Among them were "The Working Man's Companion", "The Edinburgh Medical and Surgical Journal" and "MacCaulay's Medical Dictionary", all published in January, 1832. Nonetheless, despite this concentrated burst of publishing, little fresh light was shed on the nature of the disease. As Dr. G. Smith remarked, after having read all the essays and pamphlets on Cholera and consulted all philosophic men in the profession, " ... he knew nothing more about the subject than he did before he began."[26]

There have been many instances in the past when during periods of stress and fear, rogues were able to profit from it. Glasgow was to experience an example of this roguery in 1832, for certain

individuals were offering "Cholera Morbus Pills" for sale at 5/- per box, round the doors.[27] Yet others profited from people's kindness. An Irishwoman, Margaret Charters, perfected the art of having "choleraic fits" in order to obtain brandy. On "recovering", she was reported as saying "By Jasus, give us a drop more."[28]

It was only in late January that the Glasgow press was giving any prominence to Cholera in their columns. On 27th January, 1832 the "Glasgow Herald" printed an authoritative article by Dr. J. A. Lawrie which must have impressed on the readers the seriousness and peculiar nature of the disease. Lawrie described the "eccentricity" of Cholera in India, which would depopulate one town and pass over its neighbour, attack two regiments of a line but leave one alone, affect ships lying inshore but spare those in the outer reaches. Furthermore, he designated the disease as epidemico-contagious, by which he meant that the individual was affected by exposure to atmospheric peculiarities particularly if living in crowded communities in close communication with infected persons. In such a context, Cholera would be passed on by contagion.[29] The publication of this article coincided with the news of the outbreak of Cholera in Kirkintilloch, a village only seven miles to the north east of Glasgow.[30] Twelve cases with four deaths occurred in the first four days of the outbreak, which started on 22nd January.[31] The source of the outbreak was stated to be a pile of evil smelling hoof, horn and whale bone shavings unloaded at Hillhead for the Campsie Alum Co.,[32] although the theory was quickly refuted by the "Glasgow Courier." According to the Courier, none of the cargo had been carried from a port infected by Cholera, the most recent load had been landed on January 16th and most telling of all, the men who handled the cargo were in perfect health.

By the end of January, 1832, therefore, Glasgow was still free from the disease. Nonetheless, the authorities took action of a preventive nature, closing theatres, stopping traffic on the Forth and Clyde Canal and recommending the temporary ban on evening church services.[33] After these steps had been taken in early February, the "Glasgow Herald" expressed a mood of modest optimism,

> "We have still to felicitate ourselves on there being no appearance of cholera in Glasgow and it appears to have exhausted itself in Kirkintilloch. We trust that it will pass over us altogether." 34

Less than 24 hours later, however, "the city was thrown into the deepest gloom."[35] On Saturday, 11th February, 1832, Glasgow suffered its first Cholera death, the victim being Jean or Janet Lindsay of Todd's Land, Goosedubbs, a lodger in Mrs. Proudfoot's establishment, who had taken ill two days before. All the symptoms of Cholera were evident in this case including vomiting and acute diarrhoea. During her illness she was visited by many of her neighbours and it is interesting to note that the sixth fatal case of the disease occurred in a close near to Todd's Land. On the 15th February, Mrs. Proudfoot herself became a victim but, " ... refused to be taken to hospital and would receive no other medicine or cordial but whisky."[36] Other cases occurred in Briggate, where a boy named Tully and a middle aged man called McIntyre died,[37] in Partick district by the 11th February, while on the 17th the disease spread to Maryhill with six more cases the next day.[38] Within two hundred yards of Todd's Close there were 46 cases during the first two weeks of the Cholera outbreak.

These first cases suggest the spread of the disease by direct contact with infected excrement. All the cases occurred in single

groups and in "cholera houses", where contact had been made between Cholera and food, Cholera and clothing or Cholera and drinking water. An outbreak of this type created an appearance of "eccentricity" in the disease, since it attacked specific closes and wynds, then appeared on the other side of town, only to recur in its original locus. A notable example of a "cholera house" was the Glasgow Town Hospital which had in February, 1832, 400 inmates, although not built to contain more than 320. This building was always damp, invariably being flooded every winter or spring. It was in these insalubrious surroundings that, on the morning of 22nd February, two imbicile paupers were found dead of Cholera. Between the 22nd February and 9th March, there were to be a further 64 cases of Cholera in this institution.[39]

A unique feature of the 1832 epidemic was that of numerous instances of mobbing and rioting among the working classes. This lawlessness was first seen in eastern and central Europe and as the disease spread, lawless behaviour was to follow in its wake. In the early days of the disease in Glasgow, there are a number of reports of similar incidents committed by the poorest members of society. Trying to ascribe motives for their action is difficult, but undoubtedly the people's opinions of doctors were coloured by the recent "Burke and Hare" resurrectionist trial. Furthermore, there is some evidence from Europe that the working class believed that the rich were poisoning the poor by deliberately spreading the disease, in order to reduce the population. In Russia, for instance, a rumour was circularised that the people were being ordered into hospital, where they were being butchered.[40]

In Glasgow, the first case of lawless behaviour occurred on the Tuesday evening of 14th February, when in Goosedubbs the occupants of

a house would not allow doctors to take away a Cholera victim, since, - as in Russia - it was believed that the doctors killed all Cholera patients in their charge.[41] Two weeks later, incidents became more frequent and more grave. Firstly, a mob attacked a Board of Health caravan at Woodside, which had gone to remove the body of a Mrs. Stewart.[42] Again, at Springbank, health officials were so abused by a crowd that they left without the corpse, while, at Jeffrey's Close, a man threatened the Board of Health officials with violence if they tried to take away the body of his dead child.[43] A month later, in Gorbals, a Dr. Stewart was attacked by a large crowd, shouting "cholera humbug." On this occasion the fear of a major disturbance was such that magistrates read the "Riot Act" and police cleared the crowd.[44] These Cholera riots were to continue until the early summer, the last reported one occurring in St. Mary's Wynd on June 4th.[45]

The progress of the 1832 epidemic was not even, for there were relatively few cases during the first ten days of its history. It was not until the third week in February that the severity of the epidemic was made manifest, for during the week beginning 20th February, 99 new cases developed.[46] This trend of increasing numbers was to continue throughout March and April, dying down somewhat in May, to a very low level in the week ending June 3rd.[47] But as the summer wore on the disease reappeared with increased virulence. In August, the maximum number of new cases recorded in one day was 181, with 817 in a single week. Furthermore, the disease was no longer confined largely to the poorest areas, but spread to the newer and more prosperous parts of the city such as Virginia Street, where one case occurred and Jamaica Street, where there were three.[48] The disease declined rapidly from mid October and disappeared by mid November,[49] although there was an isolated case at Barrhead Close,

66 High Street, as late as 30th May, 1833.[50]

With the publication of the Board of Health's statement that, "We are happy to have it in our power to announce that at a meeting held on Saturday, the Board, on the report of the medical members, resolved to shut up the hospital in Albion Street and discontinue publication of the daily health reports,"[51] the first Glasgow Cholera epidemic was officially declared "over". In a population estimated to number 202,426, there were 6,208 cases known to the authorities, of whom 3,166 died. Cholera deaths represented almost 33% of all deaths for 1832, the total figure for all deaths within the city being 9,654.[52]

A marked feature of this first epidemic was that the great majority of deaths were confined to the poorest sections of the population living in the wynds and closes round the city centre.[53] However, despite the closure of theatres and the ban on evening church services, city life went on without serious interruption

> "People bought and sold, married and were given in marriage, held balls and parties in the Assembly Rooms, Tontine and Black Bull and other hotels, squabbled over municipal affairs and above all, fought for and rejoiced over parliamentary reform." 54

Some candidates did stop canvassing in August during the worst of the epidemic, but political meetings continued to be held, much to the chagrin of the "Glasgow Herald".[55] One adverse consequence of the publication of the Cholera reports was a decline in Stock Exchange business. One correspondent reporting on this deleterious development, stated that, " ... trade was ruined," by their publication.[56] The Herald followed with an editorial which expressed the desire, " ... that there should be no more conversation on the subject." (Cholera)[57]

There can of course be no doubt that the 1832 epidemic was very destructive of life in Glasgow, which suffered more per head of

population than any other city or town in Scotland.[58] This trend emerged despite the fact that the authorities, working on the principle that the disease was contagious, tried to minimise the number of fatalities by removing many of the sick to Cholera hospitals.[59] The one lesson that Cholera taught was the need for sanitary reform. The fact that to 1832 observers, the disease sought out the filthy homes of the most wretched was evidence enough of a need for a policy to encourage cleanliness and cleansing, drainage and sanitation. This lesson was to be applied more rigorously during the 1848-49 epidemic.

Cholera lingered in Scotland till 1833. In June of that year there was an epidemic in the fishing village of Ferryden, near Montrose when 27 died of the disease out of a population of 700.[60] Moreover, the disease remained active in southern Europe till a much later date. Cholera was present in France in 1834, in Italy during 1835 and 1836, after which it spread northwards to Poland and the Baltic ports. In 1837, however, the Cholera appeared to die out except for a few cases in the south of Ireland and in the Limehouse district of London.[61] But by 1845, a new epidemic of "Asiatic Cholera" was on the move again, from Kabul in 1844, via the trade routes through Herat, Samarkand and Bokhara to Persia. From there it crossed into Russia, passing along the great waterways of the Don and Volga affecting the towns close by the rivers in 1847. The following year it reached the Baltic coast of Germany and again it was from Hamburg that Britain received the Cholera victim who was to mark the beginning of the second Cholera epidemic of 1848 and '49.[62]

The dubious honour of which British town had the first Cholera case of the new epidemic is disputed. N. Longmate refers to a case in Southwark in London, diagnosed on 22nd September, 1848, whereas other authorities including C. Creighton, J. Glaister and the "Eastern

Counties Herald" argued that Hull was the first infected city, where three cases of Cholera occurred on board a vessel sailing from Hamburg.[63] Whatever the truths of these rival claims, the disease quickly spread, reaching eastern Scotland at the beginning of October, when outbreaks occurred in Newhaven on the 1st and Edinburgh on the 2nd.[64] The "Glasgow Herald", in an editorial of October 7th, was of the opinion that with a greater knowledge of both the disease and its treatment, the local authorities were in a better position to control it. Thus, " ... it would appear that ordinary care is all that is requisite to render the impending visitation a comparatively light one."[65] Nevertheless the sublime optimism had given way to a mood of resigned inevitability in 1848. The press, as a whole, was more responsible than it had been in 1832. Both the "Glasgow Courier" and the "Glasgow Saturday Post" offered sound advice to the corporation in order that the misery caused by the disease might be mitigated.

> "Better than the vigilance of the most stringent code of quarantine are those simple measures of sanitary legislation for which we have clamoured for so long and so earnestly ... the systematic cleanliness introduced among a whole people by a proper scheme of sanitary legislation." 66

Cholera finally appeared in Glasgow on Saturday, 11th November, 1848,[67] with John Gordon, a jobbing gardener of Burnbank, Great Western Road, Hillhead, as its first victim. Visited on the following day by Drs. J. Miller and Fleming, they both confirmed that Gordon was suffering from "Asiatic Cholera".[68] Another case was soon identified at the home of Mr. Morton of 163 Graham Street. These two original cases proved to be fatal.[69] During the remainder of November, the epidemic was confined to one particular area of the city, known as Springbank,[70] which was located near the Forth and Clyde Canal. This locality in north west Glasgow was in a very poor sanitary state with

its houses close to the canal, constantly damp or flooded. The houses had no water supply, no drainage and defective sewerage and being built in an industrial area had to suffer effluent from a brewery as well as old quarry workings, which werefilled with "putrescent liquid".[71] Springbank furnished one third of all cases that occurred in the city in the period after 26th February, 1849,[72] when preventive measures were withdrawn.[73]

The epidemic spread quickly at the end of November over the entire city and assumed a character more purely epidemic and less localised than it had done before. Unlike the 1832 epidemic, the disease selected its victims from all classes and not the poor alone.[74] Dr. Strang reported that,

> "The malady ... threw a gloom and mourning over the best habitations of the wealthy and was comparatively careless of the more abject inmates of our more crowded hovels." 75

Drs. Sutherland and Grainger in a letter to the Lord Provost, bemoaned the fact,

> " ... that many valuable lives in the upper ranks of society in Glasgow have been lost ... from want of early attention to the premonitory signs of cholera." 76

The worst week of the outbreak was that from the 24th December, with the greatest number of deaths occurring on the 29th December - 158 burials of Cholera victims took place the day after.[77] After the revelries of the New Year, or as the Glasgow Herald would have it - "Frenzied debauchery,"[78] there was another upsurge of the disease with 235 reported cases on January 5th.[79] The epidemic declined from mid January, 1849 and ceased about mid March. The Glasgow Herald was thankful to report that the city was

> " ... exempt from cholera, if a few cases under treatment are exempted. The Faculty has ceased to issue reports." 80

The second Cholera epidemic was of shorter duration than the first, continuing from 11th November, 1848 till 23rd March, 1849, but during this time more people died, 3,923 in 1849 compared to 3,005 in 1832.[81] However, the comparative mortality in the two epidemics revealed that the 1848/49 epidemic was less severe than the former one. The comparative figures of mortality caused by Cholera are, 1.4% of the city's population died in 1832, while only 1.06% died during the 1848/49 epidemic.[82] Another marked feature of the 1848/49 epidemic, which was much commented on at the time, was that it had a greater impact on the wealthy than had the 1832 epidemic, despite the fact that they would probably have taken all the recommended precautions and would be able to engage the best medical practitioners in the event of Cholera symptoms appearing. Precautions and treatment would be to no avail when all the drinking water of the city was taken from the polluted River Clyde.[83]

References to Chapter II

1. "Cholera Morbus" when written about in a London newspaper of 1831, was written under a heading of "fashionable arrivals". Quoted in Glasgow Herald, 13 Jan. 1832.

2. All these terms are to be found in Creighton C., "A History of Epidemics in Britain." Vol. 2, edited by Eversley D., Underwood E. A. and Ovenall L. (London) 1965, Chapter VIII, passim

3. Quoted in MacPherson J. "Annals of Cholera" (London), 1872, P.15.

4. Creighton C., II, op. cit., Pps. 777-778.

5. Creighton C., II, ibid., P.786.

6. Simon J., Public Health Reports, (London), 1887, P.102.

7. Professor Robert Koch discovered the comma shaped bacillus known as a "vibrio", in February, 1884. It is this "vibrio" which is the cause of Cholera. See Longmate N. "King Cholera", (London), 1966, Ch. 22, passim.

8. Longmate N., ibid., P.227.

9. Finer S. E. "The Life and Times of Sir Edwin Chadwick" (New York & London), 1952, Pps. 333 & 334.

10. Longmate N., op. cit., Pps. 2 - 6.

11. Simon J. op. cit., P.102.

12. Longmate N. op. cit., P.20. Creighton C. II op. cit., P.797.

13. Longmate N., op. cit., P.50.

14. Creighton C., II, op. cit., P.806.

15. Glaister J., "An Epidemic History of Glasgow 1783 - 1883", (Glasgow), 1886, P.16.

16. Glaister J., ibid., P.17.
For a fuller account of Public Health administration in the city, see below Chapter III.

17. Glasgow Herald, 6 Jan. 1832.

18. Glasgow Herald, 9 Jan. 1832.

19. The lists of new Cholera cases and deaths were given no prominence and inserted often after coursing results [A] or once after an account of an anti tithe hurling match. [B]
See A Glasgow Herald 6 Jan. 1832.
B Glasgow Herald 9 Jan. 1832.

20. Glasgow Herald, 9 Jan. 1832.

21. Glasgow Herald, 3 Feb. 1832, from an article first written in the London Courier.

22. Two typical stories are: "A kite was sent up to which was attached a piece of haddock, a piece of beef and a small loaf. The kite was taken down after 1¼ hours and the fish and meat were found to be in a putrid state. The loaf of bread, examined through a microscope, was discovered to be pervaded with legions of animalcula" - Glasgow Herald 3 Feb. 1832. This article was given in evidence to support the belief that Cholera was a miasmatic disease.

Another more humourous story, reveals the dread some people had of the disease. "A clergyman residing not a hundred miles from Paisley, has carried his dread of Cholera so far that he has resolved to have no intercourse with his brother man until such time as this rueful visitor has quit our shores; with this view, he has lately got himself fortified with a high paling that extends a considerable way round his dwelling as a barrier against all intrusions. Those, however, having messages or parcels to deliver are accommodated with a bell and a speaking trumpet. - Glasgow Herald 27th Feb. 1832.

23. Edinburgh B. O. H. notice 4th Feb. 1832.

24. Glasgow Herald 27th Jan. 1832.

25. Glasgow Herald 30th Jan. 1832.

26. Report of a meeting of the Westminster Medical Society in Glasgow Herald 3rd Feb. 1832.

27. Glasgow Herald, 13th Feb. 1832.

28. Quoted in Glasgow Herald, 3rd Sep. 1832
The lady was sent to the treadmill for fifteen days as a rogue and a vagabond.

29. Glasgow Medical Journal, Vol. IV, No. 16 (1831) P.405. and
Glasgow Herald 27th Feb. 1832.

30. Creighton C., II, op. cit., P.807.

31. Glasgow Herald, 27th Jan. 1832.

32. Glasgow Courier, 26th Jan. 1832.
Glasgow Herald, 27th Jan. 1832.

33. Creighton C., op. cit., P.808.

34. Glasgow Herald, 10th Feb. 1832.

35. Glaister J., op. cit., P.20.

36. For accounts of Cholera victims at the outbreak of the 1832 epidemic in Glasgow there are many sources including;
Glasgow Medical Journal, Vol. V, (1832).
Creighton C. II op. cit., Pps. 808 & 809.
Longmate N., op. cit., P.58.
Glasgow Herald, 13th Feb. & 17th Feb. 1832.

37. Glasgow Herald, 17th Feb. 1832.

38. Creighton C., op. cit., P.808.

39. During the winter and spring of 1830-31, the lower cells of the hospital were flooded to a depth of 3' 8". For a full account of conditions and the Cholera epidemic in the Glasgow Town Hospital, refer to the pamphlet -
Auchincloss W. "Report of the Epidemic Cholera as it appeared in the Town's Hospital of Glasgow", (Glasgow), 1832.

40. Longmate N. op. cit., Pps. 4 & 5.

41. Glasgow Herald, 17th Feb. 1832.

42. Glasgow Herald, 27th Feb. 1832.

43. Glasgow Herald, 27th Feb. 1832.

44. Glasgow Herald, 19th Mar. 1832.

45. Glasgow Herald, 4th June, 1832.

46. The Glasgow Herald published the numbers of Cholera cases right up till 5th November, 1832 when the Board of Health announced that daily official reports would be discontinued.

47. See Appendix B for complete figures.

48. See Appendix A, the Cholera Map, where figures for Cholera deaths from August 7th till November 8th are shown graphically.

49. Creighton C., op. cit., P.810.

50. The Glasgow Medical Journal, Vol. I, No. 2, (1833) P.367.

51. Glasgow Herald, 5th Nov. 1832.

52. Glaister J. op. cit., P.20.

53. Glaister J. ibid., P.21

54. Wallace A. "A History of Glasgow" (Glasgow), 1882, P.99.

55. Glasgow Herald, 6th Aug. 1832.

56. Glasgow Herald, 19th Oct. 1832.

57. Glasgow Herald, 22nd Oct. 1832.

58. Creighton C., II, op. cit., P.811.

59. See below Chapter III.

60. Creighton C., II, op. cit., P.834.

61. Creighton C., II, ibid., P.835.

62. For an account of the spread of the second Cholera epidemic see Longmate N., op. cit., Ch. 15.

63. Eastern Counties Herald, 28th Sep. 1848.

64. Creighton C., II, op. cit., P.835.

65. Glasgow Herald, 7th Oct. 1848.

66. Glasgow Saturday Post, 9th Oct. 1848.

67. Glasgow Courier, 13th Nov. 1848.

68. Glasgow Herald, 13th Nov. 1848.

69. Glasgow Herald, 17th Nov. 1848.

70. Report of the General Board of Health on the Epidemic Cholera P.P., (1850), 1274, Vol. XXI, Appendix A, P.70.

71. P.P., (1850), 1274, XXI, Appendix A, P.34.

72. P.P., (1850), ibid., P.72.

73. See below Chapter III.

74. "Report of the General Board of Health up to July, 1849" P.P., (1849), 1115, Vol. XXIV, P.17.

75. Quoted in Glaister J., op. cit., P.28.

76. Glasgow Herald, 8th Jan. 1849.

77. P.P., (1850), 1274, XXI, P.71.

78. Glasgow Herald, 5th Jan. 1849.

79. Creighton C. op. cit., P.837.
Note that Creighton, in his early description of the 1848 epidemic confuses the districts of Springburn and Springbank. As late as 19th January, 1849, the Glasgow Herald could report that Springburn was free of the disease.

80. Glasgow Herald, 16th Mar. 1849.

81. Glaister J., op. cit., P.28.

82. P.P., (1850), 1274, XXI, P.87, which uses Cleland's

estimates for 1832 and Strang's figures for 1848-49.

83. The 1853-54 epidemic, the last before the Loch Katrine scheme was introduced, was very similar to the 1848-49 one. Between December, 1853 and December, 1854, 3,892 Cholera victims died with the victims coming from all social strata. See Watson W. W. "Report upon the Vital Social and Economic Statistics of Glasgow for 1869" (Glasgow), 1870, Pps. 23 & 24.
Contrast this with the next epidemic of 1866 when 53 persons died from Cholera in the city.
'With regard to the social position and character of these cholera patients they were for the most part of the very lowest and most disreputable class."
Russell J. B. "Report of the City of Glasgow Fever Hospital", (Glasgow), 1867, P.32.
Russell stated that most of these victims lived in New Vennal and took their water from a well. The contrast between Glasgow with its pure water supply and 53 Cholera deaths and London with its polluted supply and 5,570 deaths is most marked.

84. A general picture of the Cholera epidemic can be seen from burial details taken from a report written by John Strang, the city chamberlain, of Cholera deaths. This was published in the Glasgow Herald on 30th March, 1849. Unfortunately there is no street by street breakdown of these figures so no comparison of deaths in the social classes can be made.

Burials from 14th Nov., 1848 to 31st Jan., 1849.

Episcopal Chapel	2	Merchants Necropolis	102
St. Mary's	180	Southern Necropolis	282
Sighthill	426	East Necropolis	317
Gorbals	138	Christ Church	12
Calton	83	Tollcross	80
Bridgeton	271	Shettleston	20
St. Marks	15	Anderston Relief	33
North & South Woodside	93	Society of Friends	0
Maryhill	55	St. Davids & College	22
Wellington's Crypt	3	Cathedral	1,066

Chapter III

PUBLIC HEALTH IN THE CITY OF GLASGOW DURING THE FIRST HALF OF THE 19TH CENTURY

In this chapter a study will be made of attitudes to public health and to the problems of and methods used in mitigating the effects of epidemic fevers and Cholera.

As early as the 16th century, when Glasgow was a small city of 5,000 people, recurring epidemics of plague tested the Town Council's capacity for dealing with disease. In 1574, the Burgh Court drew up a series of ordinances whose main substance was to impose a quarantine on the city at time of plague, affecting both people and goods. Lodging houses were licensed; no unlicensed house could take in lodgers. Householders had a duty to report all cases of sickness and "searchers" were appointed to visit the various districts of the city. During a plague outbreak in 1646, wooden huts were erected for the victims, located well away from the city itself on the Town Muir. The sick were transported to them, where they received rudimentary medical treatment. In addition, men were employed by the council to clean and fumigate the houses where disease had occurred.[1] When the immediate danger had passed, these temporary shelters were usually dismantled or left for the homeless and it would not be until another epidemic threatened that the public authorities would be stirred to action again.

With the disappearance of plague from Britain, certainly on epidemic scale during the latter half of the 17th century, concern about public health within the Town Council of Glasgow disappeared

too.[2] The eighteenth century was one of comparative prosperity, with the fifty years from 1715 to 1765 being renowned for good harvests and low food prices. And while it is true that there were occasional outbreaks of a mild form of Typhus and Relapsing Fever in 1718, 1727-29 and 1740-42, the epidemics were not severe enough to cause more than local concern. The one marked feature of 18th century mortality figures was the high level of child mortality. Taking 1791 as an example, of 1,508 deaths recorded in the City Parish of Glasgow, 46% occurred among children under two years old, while 63% of all deaths were of children under ten.[3] The main child killing disease was smallpox, which was responsible for 19% of all deaths during the last quarter of the 18th century, the worst years being 1784 with 425 smallpox deaths in a total of 1,623 deaths and 1791 with smallpox accounting for 607 deaths out of a total of 2,146.[4] Despite the evidence of the efficacy of vaccination, no one in Glasgow Town Council was willing to propose that a scheme of vaccination should be carried out in the city. Preventive medicine was left to private charity, when in 1801 the Faculty of Physicians and Surgeons began vaccinating the children of the poor free of charge. 14,500 children were to be vaccinated during the next ten years. Furthermore, in 1818, others not connected with the Faculty, began vaccinating at the "Cow Pock Institution".[5] Although smallpox was not eradicated, it cannot be doubted that vaccination was beneficial to Glasgow. Smallpox deaths fell from 2 per 1,000 in 1801 - 1810 to .83 per 1,000 in the period 1831 - 1835.[6]

The beginnings of a hospital system for Glasgow date back to 1794 when the Glasgow Royal Infirmary was opened.[7] This private institution of 150 beds admitted all types of patients from the Glasgow district and charity cases who were paid for by the Glasgow

Parish authorities. It was to be the Glasgow Royal Infirmary which was to find itself in the vanguard in the handling of all epidemics during the first three decades of the 19th century. The managers of the hospital when it opened had, " ... undertaken to treat fevers,"[8] but ended by treating Cholera patients as well. In 1816, 80 beds were added to the hospital. Effectively that meant that its total of 230 beds were the only institutional beds available when the first great Typhus epidemic threatened the city in 1818. Typhus Fever followed a period of acute trade depression in 1817 and affected the poorest classes most severely. A Society for the Suppression of Fever was formed in March, 1818[9] to examine the extent and the probable causes of the fever. Public subscriptions were collected and while the outbreak raged on, the society, or Board of Health, searched for suitable sites for a fever hospital. But this part of its brief was initially thwarted by the opposition from the neighbourhoods where it was proposed to construct the fever hospital.[10] Finally, in March, 1818, a temporary hospital was erected in Spring Gardens containing 32 beds.[11]

From the outset of the epidemic, the inaction of the Town Council was difficult to interpret. The new Board of Health, as constituted, excluded all members of the medical profession. The fever had reached alarming proportions in September and October, 1817, 714 cases occurring in the year,[12] yet the Board did not act till March, 1818 when the hospital project was started. The Spring Gardens Hospital had only accommodation for 28 patients at the end of May, 1818 and there was no way of separating the sick and the convalescent as no provision had been made for this.[13] Furthermore, the corporation made too little money available to deal with the epidemic - about £700 or £800 - instead of the £1,500 needed.[14]

Thus it could not implement recommendations for the use of fumigators and disinfectors and the provision of ambulances for the sick. In fact the city to a large extent depended on the charitable organisation of the infirmary as an instrument in the suppression of the epidemic, in the fumigating and disinfecting of homes.[15] As for the care of fever cases, the infirmary handled the great bulk of them, 1,371 in all during 1818. However, as the Spring Gardens Hospital extended to 200 beds, 1,929 fever cases were treated there between 30th March, 1818 and 12th July, 1819 when the hospital was finally closed.[17]

Another arm of public health in Glasgow was the Town's Hospital. This institution, financed in part by the ratepayers, was built in 1773 to care for the aged and infirm. It was situated a hundred yards west of Goosedubbs,[18] close to the river and was generally overcrowded and in a filthy state. Within the confines of the hospital, was a people's dispensary where the sick poor could obtain medicines and drugs. However, as one Glasgow doctor was to point out, the list of medicines kept in the hospital was of relatively modest dimensions. In particular the dispensary was quite deficient in those medicines usually required by doctors and was thus effectively restricting the efficiency of their work.[19] In addition, at the time of the Typhus outbreak of 1818 when it was suggested to the hospital's committee that fever wards might be provided in an enten- × sion of the hospital, the committee argued that a fever ward would not be a legitimate use of their funds,

> " ... and that such an institution, if necessary, after the Royal Infirmary received the cases recommended by the magistrates should be dependent on private benevolence." 26

In looking at the history of the 1818 epidemic one gains some

idea of the attitude of the authorities to the problem of public health at the beginning of the century. Firstly, there was firm evidence that the older forms of local administration such as the Town Council, had failed to meet the emergent needs of a growing population, Knowing the extent of the fever epidemic the corporation reacted slowly to the threat. The main work of dealing with the fever was left to a charity hospital. There was, even to contemporaries, a basic lack of equity in this situation since

> " ... the magistrates were absorbing the accommodation and devouring the funds provided by suburban and rural areas." 21

Secondly, it was only when an epidemic of such dimensions as the Typhus outbreak threatened to overwhelm the city that the authorities acted. Even then the action was short lived. As the disease declined and could be handled by such bodies as the Royal Infirmary, the temporary hospitals were closed down, doctors and nurses paid off and the Board of Health ceased to exist. All action was on an "ad hoc" basis. There was to be no provision for treatment of fever in the future, if it should emerge again. Thirdly, there was the parsimony of the authorities. Their every action was governed by the concept of economy. The ratepayers had to be considered before the needy. As one physician described the early attempts of the authorities to provide fever beds in 1818 - "It is like trying to extinguish a conflagration with a single bucket."[22] Furthermore, the arrival of an epidemic in the early part of the nineteenth century was regarded by many as, " ... a punishment for deeds committed, from the hand of God."[23] The prevalence of this idea acted as a deterrent to action because of the mysterious nature of the epidemic. As had been already demonstrated in Chapter II, Cholera in its early

stages perplexed the authorities in the way it appeared to strike one area, ignore another adjacent to it and affect a third some distance from the first outbreak. When the disease presented itself in this way, people could less readily conceive that the cause, if not the origin, of the disease lay in the conditions among which the victims lived. Since most of the victims were to be found in the poorest class and were quite often found to be drunkards, petty thieves or some other species of "less eligible" person, the self righteous could point to them as God's judgement on man.

Lastly, as J. B. Russell said correctly, " ... boundary stones are impotent to control the movement of fevers,"[24] yet as Glasgow was to find to its disadvantage, boundary stones were interfering with public health within the city. In the early part of the 19th century, one major drawback in the administration of public health schemes was the fact that the city was divided into four separate areas, namely Royalty, Barony, Gorbals and Calton. Each area had its own magistracy and board of police. Each had its own poor rate assessment and method of administering poor funds. To make matters worse there was, " ... no organic connection between community and council."[25] The council of the City of Glasgow, up until the Burgh Reform Act of 1833, was a self perpetuating oligarchy, which had little interest in the day to day happenings of the people. Thus in a situation where there was no territorial unity and where burgh magistrates had no administrative authority beyond the burgh boundaries, there could be no continuity of policy in the handling of public health matters. Each area of the city devised its own methods of dealing with epidemics. Glasgow was worse off than she had been at the times of plague. Then she had territorial unity, but this situation was not to recur until the Glasgow parliamentary

area was placed under a single municipal government in 1846. This absence of a unified administrative structure was to bedevil public health affairs during the 1820's and 1830's.

The next epidemic to trouble the authorities was that of Relapsing Fever which reappeared in 1825 when 897 cases were treated in the Royal Infirmary.[26] As the number of fever cases increased year by year, reaching a peak of 1,500 in 1828, the Spring Gardens Hospital was re-opened for a period of five months. Significantly enough, since it was the Royal Infirmary managers who requested the re-opening of Spring Gardens, the decision was carried out at the Infirmary's expense.[27] In addition to this step, the Infirmary erected in 1828 temporary wooden fever sheds in the hospital grounds. Already, however, the managers saw a need for a permanent fever hospital because, as they stated,

> "In this large city, typhus fever must be at all times liable to occur and in the narrow and crowded vennels and wynds it must be frequently apt to break out with virulence so as to endanger the whole town." 28

This "Fever House", with accommodation for 220 patients, was opened in 1832,[29] in time for the first Cholera epidemic.

In 1831, the re-emergence of "Typhus Gravior" was to stir the authorities to action for a second time. The epidemic spread quickly and the cases became so numerous that the Lord Provost called a meeting for the purpose of forming a Board of Health.[30] This Board, under the chairmanship of the Lord Provost, appointed a Medical Committee to make all necessary arrangements,[31]

> " ... to guard against the visitation of the calamity, to provide for the suppression of Typhus Fever and promote the Welfare of this great community by every means which could avert the approach or effect the extinction of the disease." 32

Among its members were Dr. John Burns, F.R.S., professor of surgery at Glasgow University; Henry Marshall, deputy inspector general of hospitals and Dr. J. Corkindale, Ll.B., surgeon to the City Corporation.[33] As an example to the city, on the 16th December, 1831, the magistrates and council donated the munificent sum of £200 towards defraying the cost of public health measures. This sum, which was taken from corporation funds, was approved by the full council on 18th January, 1832.[34]

Meanwhile, with "Asiatic Cholera" raging in Europe, the British Government had acted. In accordance with the practice established in 1805 at the time of the "Gibraltar Sickness" and after consulting the Royal College of Physicians in London, it was decided to establish a central Board of Health. By Royal Proclamation, this was set up on 21st June, 1831, the twelve salaried members receiving £500 per annum.[35] On June 29th, 1831, a draft of the Board's rules and regulations was published, which, among other things, suggested,

> " ... that in every town and village... there should be established a local Board of Health."

In the wake of this suggestion, 1,200 Boards were appointed in Britain, 400 of which were in Scotland.[36] The central Board of Health recommended that all these local bodies should be responsible for the cleaning and disinfecting of Cholera victims' houses; that their clothes and furniture should be thoroughly cleaned and the walls and ceilings of their homes lime washed. Thus from the outset of the Cholera epidemic of 1832, the Glasgow Board of Health knew what was expected of it.

To meet the danger of the Cholera, action was taken on three fronts, by the Glasgow Board of Health, by private charity and by central government in London. The Medical Committee, in anticipation

of numerous Cholera cases, proceeded to equip five Cholera hospitals, one lazaretto and a large fever hospital.[37] This was in addition to the existing hospitals in Gorbals, Calton and Anderston.[38] When fitted up, the fever hospital at Mile End was presented by the Board of Health to the managers of the Royal Infirmary who undertook to support it from their funds. The Cholera hospital had 282 beds and the lazaretto was intended for the reception of those leaving infected houses. Dispensaries for medicines were also established in various parts of the town.[39] To help to meet the considerable cost of these preparations the following advertisement was inserted the the Glasgow Herald on 2nd January, 1832, in order to solicit contributions.

> "To guard against the visitation of that awful calamity, the Cholera Morbus - to provide for the suppression of Typhus Fever which is spreading its ravages through the city and suburbs and for which the accommodation of the Infirmary has become inadequate, ... a Board of Health, consisting of a large representation of the citizens has been established. Aware that for such important and extensive objects considerable funds will be requisite we hereby agree to contribute the sums affixed ..." 40

As a result of this appeal, £3,929. 15s. had been collected within four days.[41]

As Cholera spread throughout the east of Scotland, the Glasgow Board of Health carried out other preventive measures. A meeting of all general practitioners in the city was called on 1st February,[42] in order to consolidate measures taken to prevent the spread of disease and to disseminate information on the treatment of Cholera. Another precaution taken before the epidemic attacked the city, was to clear the streets of public beggars and to prevent other mendicants entering the city. Of 200 vagrants brought before the magistrates, most were sent back to their home parishes while, " ... the strong,

incorrigible beggars were sent to the Bridewell."[43] In addition, cast off clothing was collected at the Board's general depot at 69 Glassford Street, for the diseased poor.[44] The citizens of Glasgow gave generously to this cause with 8,190½[45] articles in all being donated. The Medical Committee also authorised the purchase of some new clothing, cloth for making clothes and it redeemed 1,299 articles from pawn shops.[46]

With the appearance of the first definite Cholera case in the city in the second week of February, the Medical Committee intensified its public health measures. Lists of recommendations as to personal cleanliness, eating and drinking habits were posted.[47] The Cleaning and Fumigating Committee increased the squad of workmen who were busy fumigating and whitewashing houses.[48] All the prisoners at the Police Office were scrubbed down with soft soap and cold water. Another Board of Health venture was the opening of soup kitchens throughout the city. The biggest of these was in West Clyde Street, where needy tradesmen, labourers or others who were out of work were supplied with soup and bread.[49] But with the rise in number of Cholera cases during March and April, Board of Health funds were rapidly exhausted and many soup kitchens had to be closed down.[50] The last kitchen to close was that in Tradeston District which managed to continue in operation for a month longer than any other only because of the action of the parish elders.[51]

As the summer progressed and the second phase of the disease manifested itself, further action had to be taken to deal with the increasing numbers of cases. Another Cholera hospital was established in the Old Wynd in August. This hospital was established in a disused cooperage and was fitted out to care for 30 to 40 patients.[52] Medical students were asked to help out at Board hospitals when

district surgeons were unavoidably absent.[53] Only with the decline of the disease in November did the Board of Health close its hospitals and discontinue the publication of daily official reports.[54]

Religious life in the city was interrupted by the Board which, as part of its preventive measures scheme, recommended that evening services be discontinued. This recommendation was acted on by the churches and no services were held in the evenings throughout the period of the Cholera epidemic. The Board relaxed the ban somewhat in April when it announced that Sunday Evening Schools were safe to be resumed, for the odd reason that, " ... the days are getting longer."[55] In addition, the Roman Catholic Church authorities, as a preventive measure, called for a ban on wakes and insisted that bodies be buried within 12 hours of death.[56]

The responsibility for protecting the country from epidemics at Central Government level fell upon the Privy Council, there being no department responsible for public health.[57] As news of the approach of Cholera from Europe reached London, the government took its first positive step to try to prevent the disease reaching Britain when it imposed a quarantine on vessels coming from Cholera affected ports. This measure was announced on June 20th, 1831 in a proclamation issued by the King in Council.[58] When Cholera was first reported at Sunderland, a new Quarantine Order was proclaimed by the Privy Council on October 20th, 1831. This edict envisaged the setting up of "Cholera houses" where all Cholera cases in a town might be removed with the consent of the sick person's family. If this consent was not given a mark, "sick" was to be placed on the front of the house to warn passers-by that the house was in quarantine.[59] The restricted nature of this approach would suggest that little

progress had been made in the field of preventive medicine since the days of plague 1665-66.[60] This new quarantine order contemplated cordons of troops or police around Cholera infected towns, " ... so as utterly to exclude the inhabitants from all intercourse with the country."[61]

The obvious futility of this regulation entailed its inevitable revision by a circular from the Council Office of 14th November, 1831, which stressed " ... the necessity of avoiding such communication as may endanger the lives of thousands." It was to be this document which was to influence the thinking of the Glasgow Board of Health. When Cholera appeared in Glasgow in February, 1832, the Board of Health in London expressed anxiety that the epidemic might spread to Ireland. For this reason, the Privy Council directed that all ships arriving in Ireland from Glasgow or any other Clyde port be placed under quarantine.[62] This restriction was not lifted till 24th February, 1832. Another order forced ships carrying upwards of fifty persons to U.S.A. to have on board a fully qualified surgeon.[63] Finally, a proclamation by the Lord Lieutenant of Lanarkshire directed that all beggars be siezed as vagabonds and that they should be imprisoned for one month during which time they should receive only bread and water.[64] This order attempted to prevent the movement of beggars who might themselves spread the disease.

Further actions by Westminster revealed equally clearly the attitude of the authorities to the epidemic. Since disease was still regarded as a visitation of God, the Privy Council issued an order that a fast day be held throughout the United Kingdom on account of the dangers which threatened the country. The days to be observed as fast days were Thursday, 22nd March, 1832 in Scotland and the 21st March in the rest of the country.[65] But these national

Fast Days proved to be disappointments. Only about twenty members of the House of Lords attended Westminster Abbey and a hundred M.P.s St. Margaret's, Westminster.[66] The situation in Glasgow was similar. The fast was observed with at least outward decorum and solemnity. No steamships were allowed to sail on the Clyde and coach services to Paisley were cancelled for the day,[67] but while the pious attended church, the "canaille" went about their normal daily business.

It was not until February, 1832, that the Government introduced Cholera Bills, the one for England and Wales entitled "A Bill for the prevention as far as may be possible, of the disease called cholera, or spasmodic, or Indian Cholera in England."[68] The provisions of this Billwere so niggardly and inspired such opposition from radical and Tory alike, that the Government had to widen its scope. In this way a faltering first step was taken by the state of the responsibility for the well being of the people of Britain.

On the 16th February, 1832, "a Bill for the Prevention of Cholera in Scotland," was introduced. It was the preamble to this Bill,

> "Whereas it has pleased Almighty God to visit the United Kingdom with the disease called Cholera ... and whereas with a view to prevent, as far as may be possible, by the Divine blessing the spread of disease ...," 69

that revealed the widely held belief in the divine origin of the epidemic, although it provoked Joseph Hume, M.P. to state that, "he thought it was all cant, humbug and hypocrisy ..."[70] The Act was to remain in force till 31st December, 1832 and from then till the end of the next session of parliament.[71]

The main powers of the Act can be briefly summarised. Two or

more Privy Councillors could issue orders to prevent the spread of Cholera, bring relief to the sick and order burials. They could appoint persons in Scotland to execute the terms of the Act. A special rate was to be levied by local authorities on property owners in order to defray the costs for the upkeep of Cholera hospitals and dispensaries.[72] Making full use of the powers, the Privy Council acted quickly and on 10th March, 1832, issued an order empowering Boards of Health to provide temporary hospitals and all necessary articles for the reception and care of Cholera victims.[73] Glasgow Corporation levied the special rate which was to realise nearly £6,000.[74] Unfortunately, however, the Barony Parish was, in law, both a town and landward parish and the Cholera Prevention Act did not allow the levying of rates in such a parish.[75] The Lord Advocate was forced to introduce a new Bill on 10th March, 1832 to remove this legal impediment.[76]

The legal powers to allow Glasgow Corporation to act against Cholera were available but on examining the corporation's performance in dealing with the 1832 epidemic a number of criticisms must be made. As has been stated earlier, provisions were never made until the disease had outrun the existing accommodation. At any time during the course of the emergency there was never enough accommodation to meet the needs of the sick. According to J. B. Russell, only 25% of known cases were treated in a hospital. Dr. Cowan's figures reveal that 9,665 patients were treated at home for "fever" by district surgeons during the period 1827 - 1840[77] and it is probable that a fair proportion of these "fever" cases would be Cholera patients. At the onset of Cholera in Glasgow, the shortage of hospital accommodation quickly became apparent. But as a report in the Glasgow Medical Examiner revealed, not only was the Board of

Health failing to provide adequate hospitals to meet the needs;

> " ... the subsidiary hospital in the east end of the city has by a strange overlook been placed in the property for sale and now sold." 78

Provisions of pharmaceuticals and medical staff were very limited until the epidemic had reached crisis proportions.[79]

The parsimony of the corporation was in evidence again, which caused the Royal Infirmary to fight it for funds for the maintenance of patients whom the corporation had placed in the infirmary's care. Rather than make the ratepayers pay, the local authority made use of a charitable organisation and burdened it with the support of many Cholera cases. In effect, the corporation was forcing the infirmary to use money which was derived from legacies and donations, the interest on which helped relieve general sickness.[80] Of a total expense of £10,000 in the course of the typhus and cholera epidemics for prevention and treatment, no less than £8,000 was raised by voluntary contributions.[81]

The remaining years of the 1830's were not to be threatened by anything as dramatic as a Cholera epidemic. Despite this, there is evidence of a rising death rate from 1834 to 1837 caused, in the main, by typhus which held the poor of the city in a relentless grip. Typhus was ever present in the 1830's and in the 1840's too and was to be found most in evidence in periods of industrial depression such as late 1836 and 1837. Nevertheless, the Corporation of Glasgow did not concern itself much with the disease except in 1837, when the number of typhus cases proved too great for the Royal Infirmary to handle. The Albion Street premises were re-opened as a temporary fever hospital, where 906 cases were treated of the 5,387 admissions to hospitals for that year.[82] In addition, the Glasgow

Board of Health, which had been reconstituted to deal with the 1837 typhus outbreak,[83] was to be more or less a permanent institution in the city from then on. The Board tried to deal with the causes of the disease in the usual manner. Homes of persons affected by fever were fumigated, under the auspices of the Superintendant of Police and the tenants were supplied with a quantity of soap, soda and new straw for their beds.[84] From November, 1839 till August, 1842, 3,610 houses were treated in this way.[85] One disturbing feature of this period was that a considerable number of poor, who had received medical certificates that recommended their admission to the infirmary, had to be turned away by the police because there was no room for them there.[86]

By about 1840 the increasing volume of epidemic disease concentrated the attention of many men from both the medical and political fields on the issue of the public health of the nation. A new atmosphere had been created in which disease was not only regarded as a misfortune to the individual but also as a factor in the national welfare and so entitled to some consideration from the state. Public health might be a intermittent consideration but it touched all levels of society, for as death rates increased, more and more widows and orphans were forced to seek relief from Poor Law authorities, which in turn were compelled to seek more money from ratepayers. The crusade for public health reform was conducted by an enlightened minority, but gradually as the social and economic cost of human misery bore down on the ratepaying public, the voice of the minority was heard in the "corridors of power".

The public health movement in Great Britain did not possess a homogeneous character. In particular, the history of Scottish developments differed markedly to those in the rest of Britain. In

Scotland destitution was seen to be a leading cause of disease, whereas in England the movement was more concerned with the relationship between disease and physical surroundings. In England the movement for public health and sanitary reform began late in the 1830's as part of the work of the Poor Law Commission, which found that the nuisances by which contagion was generated and persons reduced to destitution constituted one of the most important pressures on the poor rate.[87] The enquiries into the working of the Poor Law in England and Wales revealed that the cause of disease was dependent on environment and environment was the sum of conditions which might be altered at will.[88] It was the campaign of the enlightened minority, led by Edwin Chadwick, to improve the environment which led to the setting up of the Health of Towns Commission of 1844, from whose labours emerged the Public Health Act of 1848.[89] The campaign in England was aided by various groups such as the Health of Towns Associations, "The Lancet" from 1844, enlightened civil servants, doctors and M.P.s.[90] Thus the 1840's experienced a quickening and strengthening of the public health movement in England.

In Scotland, the Poor Law reform movement became linked with the public health reform movement and it was from change in the Scottish Poor Law that a new public health arm was to emerge. The 1845 Poor Law Act enabled the poor law authoritiesto contribute from poor law funds to any public hospital or dispensary provided they benefited the sick poor.[91] Given therefore, this shift of emphasis, it is essential to examine the reasons for this change.

The problems of the English and Scottish Poor Laws of the early 1830's were quite different. In England, the problem was to curb the excessive relief to the able bodied. In Scotland the able

bodied were not eligible for relief and the aged and helpless poor often did not get the relief to which they were legally entitled. In addition the rates levied by Scottish parishes for poor relief were much lower than they were in England. In 1838 the level of relief in England was equivalent to 7s. 7d. per head of population, while in Scotland the comparable sum was only 1s. 4d.[92] In Scotland, the main campaigners for poor law reform were Professor W. P. Alison of Edinburgh University's Medical School and Professor Thomas Chalmers. Chalmers was more concerned with the ending of poor relief, because by withholding assistance the general level of wages would be forced up. He also urged the encouragement of self help, abstinence and thrift in order to improve character. Alison took the opposite view and in his pamphlet, "Observations on the Management of the Poor in Scotland and its effects on The Health of the Great Towns" published in 1840, he advocated a policy of improved relief in order to raise the standard of comfort of the people. Destitution, he said, was a direct factor in the spread of epidemic disease. Alison's work was a factor in the setting up of a Royal Commission to examine the Scottish Poor Law in 1843 which led, in 1845, to the passing of the Poor Law Amendment Act. The Act provided for the creation in Edinburgh of a Central Board of Supervision charged with the general responsibility for the relief of the poor. It also provided for the creation of parochial boards whose task it was to keep a poor roll, appoint an Inspector of Poor and raise funds for the relief of poor. The parochial board was open to every voter in Glasgow who qualified under the 1837 Police Act.[93]

The medical provisions of the Act are of direct relevance to the public health question since they created a statutory obligation to provide for the sick poor. Section 66 laid down provisions for

the supply of drugs and medicines, section 67 allowed the parochial board to contribute funds to any infirmary, dispensary or lying in hospital where the poor were treated and section 69 allowed for the provision of food, clothing and medical attention. Thus for the first time, a statutory obligation was placed on the parish to provide for one class within the community out of public funds. This could not have happened at a more opportune time, for within two years of the Act, the Glasgow Parochial Board was to be tested by a major epidemic of typhus.

The earlier administrative defect whereby Glasgow was divided into various self governing districts was removed by the passing of another important Act. The Police and Extension Act of July, 1846[94] improved the working of municipal government by abolishing the administrative boundaries of Calton, Anderston and Gorbals and bringing these areas within the jurisdiction of the City of Glasgow.[95] Glasgow magistrates' powers now extended over the entire parliamentary constituency of Glasgow thus removing the parochial nature of their authority which they had obtained up till that time.

In 1847, Glasgow was visited by a devastating epidemic of Typhus. Such was the severity of the outbreak that all the accommodation, both permanent and temporary, that the Royal Infirmary could provide proved inadequate. The infirmary treated nearly 5,000 cases by itself,[96] but the Parochial Boards of the City and the Barony Parishes were forced to open temporary hospitals at the Old Town Hospital,[97] while Barony erected temporary fever sheds. Between them, 900 beds were provided[98] and were available till July, 1848. But in this crisis, the work of the Parochial Board cannot go uncriticised being as guilty of parsimony as their predecessors. Too few district surgeons were employed by the board, with only one

each for Bridgeton, Anderston and Cowcaddens.[99] Furthermore, the district surgeons were also expected to work at the fever hospital without extra payment. There was a minor revolt over this order which eventually was amicably resolved.[100] However, as a test of the new authorities' handling of an epidemic, it proved a useful experience for what was to come the following year.

The public health movement within the city received a boost when two new associations were formed. The first, in July, 1847, was the Anderston Sanatory (sic) Society, which gave publicity to the public health campaign by giving handbills with a "code of health" to the poor and by holding public meetings. The society had one or two minor successes, firstly, when it obtained tents for the homeless poor from Glasgow Corporation and then when it persuaded the Police Board to sanction the cleaning of courts and closes by their water carts.[101] The second association had more importance for the future and although three years after the commencement of the campaign in England,[102] the Health of Towns Association was now formed in Glasgow. This new association was first proposed in December, 1847 at a meeting of the Glasgow Parochial Board. This idea was quickly endorsed by the boards of Barony and the suburbs.[103] The constitution of this body allowed the association ot collect funds in order that it might collate all information on the public health question and issue its findings to all interested parties. It was also empowered to detect nuisances and take measures for their abatement or removal, to improve housing for the poor and give to the city a better water supply and cleaner air.[104] As a pressure group throughout the 1850's, this association was to prove most effective with a notable success when the city was supplied with pure water in 1859.[105]

It was news of the approaching Cholera epidemic of 1848 which was to compel action at local and national level on the public health issue. The Cholera question was aired in the press, beginning with a letter to "The Times" of 15th October, 1847. When the Cholera reached Russia in November, 1847, the Royal Commission on London switched its investigations from drainage to Cholera and the Second Commission's report of February, 1848 dealt with the disease and the need for local Boards of Health.[106] The spread of Cholera from Russia to central Europe in the summer of 1848 led the Government to introduce a new "Cholera Bill", known as the Nuisances Removal Act, on 7th August, 1848, which received the royal assent on 4th September. The Act gave powers to the General Board of Health to appoint medical superintendants and issue regulations for nuisance removal, to be effective when an Order in Council was issued. With the news that Cholera was present in Hull and Sunderland at the end of September, the Nuisances Removal Act was brought into force on September 28th.[107] Cholera had acted, " ... as a true sanitary reformer".[108]

The Board's first "Regulations", dated 5th October, 1848, recommended instant preventive measures together with preparations for medical relief on the outbreak of an epidemic. Lists were to be made of areas in the worst sanitary condition, medical officers were to report on them and on the basis of these reports, steps were to be taken to clean and fumigate affected houses. Dispensaries were to be set up together with houses of refuge and arrangements made for a system of house to house visitation. As Cholera was always heralded in the victim by diarrhoea, if it could be stopped by constipative drugs at the incipient stage, the victim might be saved. Thus a house visitation scheme was intended to trace all

people at the premonitory stage and persuade them to take prescribed drugs.[109] By an order of November 9th, the Central Board ordered all parochial boards in Scotland to clean and disinfect all prescribed insanitary areas.[110] This Government activity certainly reveals a change in attitude to that which prevailed in 1832. The experiences of the preceeding decade had changed Westminster's view of public health. In the words of a Report of the General Board of Health,

> "Men must be taught individually and collectively to obey the natural laws; each man for himself; every family in order to ensure its possession of that immunity from disease which the Great Creator obviously intended his creatures to possess; and all men acting in their social or corporate capacity for the protection of each other and the entire community." 111

Despite the alarm that the impending arrival of Cholera was causing in high places, the history of Glasgow's handling of the 1848 outbreak started off on an ominous note, which did not portend well for the future. In September, the Fever Committee of the Parochial Board recommended reductions in the size of medical and house staff of the Clyde Street Fever Hospital, in order to effect a saving of £710.[112] However, this time parsimony was not to be the watchword of Glasgow's campaign as it had been in the past. Acting on, or in anticipation of, General Board orders, the Glasgow Parochial Board made provisions for the treatment of the Cholera before it had broken out in the city. Dr. Lawrie, the Medical Superintendant for the city, was asked to prepare a section of the fever hospital in Clyde Street for the reception of Cholera patients[113] and 200 Cholera beds were made available there.[114] At the same time, the Royal Infirmary managers converted their fever hospital for the use of Cholera victims by removing their other patients to temporary wooden sheds in the infirmary grounds.[115] Two temporary hospitals

were opened in Woodside and Bridgeton, the House of Refuge in Clyde Street had accommodation for 280 persons, while Barony Parish House of Refuge in Bridgeton could accommodate 200.[116] By mid October, the "Glasgow Herald" could report that,

> " ... scouring, scrubbing, washing, paving and draining are going on all over the lower parts of the city at a great rate. Nuisances are disappearing in all quarters and ... piggeries had disappeared which had annoyed adjacent inhabitants for years." 117

Barony Parish issued 10,000 copies of the regulations for the prevention of Cholera.[118] On 12th October, a dispensary was opened at Clyde Street Hospital, the Royal Infirmary announced it was ready to receive patients from the Parochial Board,[119] while district surgeons were ready to meet the emergency[120] and agreed to co-operate with Dr. Lawrie.[121]

Glasgow's programme of preventive measures showed on this occasion a considerable advance over its 1832 record. The complacency and misguided optimism of February, 1832 had been replaced by positive action which had been carried out a month before Cholera affected the city. Hospital accommodation was adequate, with more than five hundred beds available. No fewer than 26 day dispensaries and 13 night dispensaries were opened where all persons could obtain help without medical orders. Qualified physicians were on duty at these dispensaries to give immediate attention, while 23 district medical officers were employed to co-ordinate the aid programme for Cholera victims in their areas.[122]

As far as the cost of relief measures was concerned, 1848 reveals less concern about the ratepayers and more for the Cholera victims. Certainly money was more readily available in 1848 and Westminster helped a little by giving a Parliamentary grant for medical relief

of the poor.[123] In 1832, when funds ran out relief measures were ended, but in 1848 the authorities did not flinch from levying a supplementary assessment on Glasgow ratepayers up to £20,000.[124] This allowed relief measures to continue till the epidemic was over and no staff member was dismissed from the Clyde Street Hospital until mid March, 1849.[125]

The most interesting innovation of the public health campaign of 1848 was the scheme of house to house visitation first proposed in Glasgow by Dr. Lawrie. He believed that the problem of treating the poor at home was insurmountable and that it would be better for the sick to be removed to hospital, their relatives to Houses of Refuge and their houses fumigated.[126] This type of scheme was first tried in Nordelf in Norfolk, where there were 50 cases of Cholera in a population of 150. From the time the visitation scheme started, medical aid had been given and cleansing operations carried out, only four new cases of Cholera occurred.[127] Glasgow was next to adopt the scheme, which commenced in the city on the 26th and 27th December, 1848 at a time when the epidemic was at its height.[128]

Health visitors were employed, who were provided with medicines to administer on the spot to all persons who exhibited premonitory symptoms. 40 such visitors were employed by City Parish and 28 by Barony.[129] In addition to those medical visitors, Barony Parish employed a number of lay visitors, while in Bridgeton voluntary visitors, who were local shopkeepers or working men, were used to visit every house in the area in need of cleaning. They discovered many incipient cases of Cholera, who when treated by district surgeons, were saved.[130] As a supplement to house to house visitation, on the orders of the General Board of Health, the Secretary of State

introduced a scheme of factory inspection, when medicines were given to affected persons.[131] The effectiveness of the scheme cannot be doubted. Firstly, a large number of corpses were discovered for burial, but more important was the great number of people treated at the premonitory stage who had no knowledge of the danger to which they were exposed. Between 31st December, 1848 and 26th February, 1849, no fewer than 13,089 reported cases of Cholera received treatment from medical officers and visitors,[132] 806 people were admitted to the two Houses of Refuge, while their houses were cleaned and fumigated.[133] The visitation scheme was encouraged by the city clergy, who exhorted their congregations to co-operate with the health visitors and admit them to their homes.[134]

The results of the visitation scheme and preventive measures taken were most heartening. If the victim was treated at the diarrhoeal stage, his chance of recovery was very greatly improved. Mortality among those treated at that stage was only 1 in 185. If treatment was delayed till the vomiting and cramps stage, 53 persons died out of every 100 cases.[135] In these districts where the visiting system was highly organised and no one escaped inspection, most cases were caught at the premonitory stage. Parkhead in the Barony Parish was one such district.[136] The measure of the success of the scheme is shown by comparing mortality figures for the period before and after the visitation scheme operated. (See table VI)[137]

Yet, while the city authorities were justifiably pleased with the results one fact cannot be ignored, that the number of Cholera deaths declined can be attributed more to accident than design. The authorities by their treatment believed that they were curing Cholera, but what they could not know, since it was to be another thirty five years until Koch isolated the Cholera "Vibrio", was that

constipative drugs in themselves did not cure Cholera victims. The reason that there was a decline in the number of deaths can be explained, nevertheless. Since in the beginning of an epidemic most cases began as simple contact types, the treatment with constipative drugs and removal of persons to hospital or house of refuge reduced the liability to contact. Constipative drugs also prevented the infected persons using their privies, so that these would not overflow and infect others in their homes. Again, the cleansing and fumigation operations would remove the sources of contact.

The few deficiencies which emerged in the visitation scheme cannot altogether be blamed on the authorities. In such districts as No. 3, situated between Bridgegate and Trongate, the population, which included many Irish, was of such a migratory nature that the medical visitors complained of not seeing the same individuals from one week's end to the next.[138] In more salubrious areas such as District No. 14, on the east of Castle Street, middleclass patients often resented the visitation scheme as an invasion of their privacy and did not co-operate with the authorities. Some also concealed the disease at its early stages, thus rendering the system ineffective.[139] Yet despite these deficiencies, the visitation system, on the whole, worked thoroughly and well and a great number of lives must have been saved by timely treatment. Speaking for the General Board of Health, Dr. Sutherland was able to report that,

> " ... no provision more munificent was ever made for the relief of a great public calamity than that carried out by the humane and enlightened citizens of Glasgow." 140

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The history of the 1848-49 Cholera epidemic in Glasgow would lead one to believe that at long last the community accepted its responsibilities for its public health. This, however, would be a

false impression. Spurred on by a dread of Cholera, the community was willing to act, but with the decline of Cholera, the incentive was removed. For property owners and occupiers, public health measures meant increased rates and so long as rate expenditure could be seen to help themselves, then it was justified. But another decade was to pass before they were willing to submit to increased rating for the benefit of the poor, whose misery they did not share. Self interest was not yet enlightened enough to make reforms of public health worth paying for. In this context, it is worth noting that a Bill for Promoting Public Health in Scotland, moved by Sir G. Grey in April, 1849, did not get very far[141] and it was not until two Cholera epidemics later, that in 1867 the first comprehensive Public Health (Scotland) Act was introduced.[142]

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27. Brotherston J. H. F., op. cit., P.64.

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33. Glasgow Herald 3rd Dec. 1831.

34. Renwick R. (editor), "Extracts from the Records of the Burgh of Glasgow", Vol. XI, (Glasgow), 1906, Pps. 457 & 458.

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41. Glasgow Herald 6 Jan. 1832.

42. Glasgow Herald 1 Feb. 1832.

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44. Ferguson T., op. cit., P.124.

45. Among the donations to the Board of Health was 33½ pairs of blankets - Glasgow Free Press 24 Mar. 1832.

46. Glaister J., op. cit., Pps. 17 and 18.
Altogether 576 new items were provided by the committee.

47. Glasgow Herald 13 Feb. 1832.

48. Glasgow Herald 20 Feb. 1832.
However the cleansing operation was not carried out in all the districts of the city. Blackquarry, Port Dundas and Springbank were omitted from the scheme. See Reformers' Gazette, Vol. XL, 4 Feb. 1832.

49. Glasgow Herald 20 Feb. 1832.

50. Glasgow Herald 30 Apr. 1832.

51. Glasgow Herald 4 Jun. 1832.

52. The accommodation was obtained as early as February - see Scottish Guardian 10 Feb. 1832, - and was ready to receive cases in August, - Glasgow Herald 6 Aug. 1832.

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54. Glasgow Herald 5 Nov. 1832.

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Glasgow Herald 5 Mar. 1832.

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87. Lubenow W. C., "The Politics of Government Growth" (Newton Abbot) 1971 P.69.

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103. Glasgow Herald 3 Dec. 1847.

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113. Glasgow Parochial Board, Minute Book No. 1.
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117. Glasgow Herald 11 Oct. 1848.

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119. Glasgow Parochial Board Minute Book No. 1.
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137.

137. Table VI

		% of deaths	% of Recoveries
Period ending	9th Dec. 1848	53.4	46.6
	16th Dec.	60.5	39.5
	23rd Dec.	60.0	40.0
(Visitation Started)	30th Dec.	51.7	48.3
	6th Jan. 1849	50.0	50.0
	13th Jan.	40.7	59.3
	20th Jan.	34.8	65.2
	27th Jan.	35.0	65.0
	3rd Feb.	31.5	68.5
	10th Feb.	37.8	62.2
	17th Feb.	22.2	77.8
	24th Feb.	38.0	62.0

Source: P.P. (1850) 1274 XXI P.80

138. P.P. (1850) 1274 XXI P.83

139. P.P. (1850) ibid., P.86.

140. P.P. (1849) 1115 XXIV P.13.

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The Lord Advocate moved the Bill on 7th May, 1849 and on 10th May, 1849 the Bill was read a second time. On 1st June the Bill was committed to a Select Committee who did not report till the following parliamentary session. The Bill was raised in the Commons again on 12th April, 1850 and committed for 26th April but was not debated on that date and dropped.
See Hansard Vols. CIV, CVII and CX. (1849 & 1850).

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(Edinburgh & London) (1958) P.155.

Chapter IV

THE SANITARY REFORM MOVEMENT IN GLASGOW DURING THE FIRST HALF OF THE NINETEENTH CENTURY

As has been seen in Chapter one, Glasgow had an unenviable reputation for being a dirty city. Filth and squalor were to be found almost everywhere in the centre of the city, but they reached the extreme forms in the wynds and closes in the area off the High Street. Such a situation was not unique to Glasgow for it was repeated in every town and village throughout Scotland. It was the scale of the problem which made Glasgow notorious, with dilapidated dwellings, badly paved streets, a lack of privies so that "fulzie" was thrown onto middens, into the streets or else flung directly onto the common stairs and the closes. With water having to be carried from the wells or stand pipes, a troublesome and time consuming task, this provided the Glaswegian with an excuse for being dirty.

But there were, as early as the end of the eighteenth century, men who saw the need for the improvement of sanitary conditions. Among them were William Buchan, who in his book "Domestic Medicine" published in 1769, called for the creation of a force of medical police to control sanitary conditions in towns.[1] Others, such as Andrew Duncan and W. P. Alison, carried on similar arguments in the nineteenth century. Identical views were also embodied in the work of Sir J. Pringle, who was Physician General to the army in Flanders in 1742 and 1743. He associated in incidence of dysentery and diarrhoea with the filthy surroundings in which soldiers lived. By instituting a programme of hygienic reform, Pringle caused a reduction in numbers of dysentery cases. Again, by introducing his

hygienic measures to and improving the ventilation in military hospitals, Pringle reduced the number of Typhus cases considerably. Similar results were produced by Howard, who, while High Sheriff of Bedfordshire, adopted measures for the county's prisons the same as those introduced by Pringle thirty years earlier.[2] By the early 1800's, such developments had created an informed body of medical opinion on the subject of sanitary reform. By the 1820's and 1830's there was a flood of medical pamphlets urging the need for such sanitary measures as cleansing of streets and houses, regulation of lodging houses, suppression of overcrowding and the demolition of bad houses.[3]

The first developments in the history of sanitary improvement in the City of Glasgow were hindered by weaknesses in early nineteenth century local government. As has already been demonstrated in Chapter III, the city was divided into independent magistracies and boards of police which made the government of the city difficult. These divisions led to conflict between the various bodies and inhibited the effectiveness of any programme of reform. However, as the City of Glasgow grew during the 18th century, there was a need for improved cleansing, lighting and policing of the city and out of this need the first Police Commission emerged.[4] Before 1800, the Town Council had been responsible for the functions of cleaning, but as the town expanded, the council clearly failed to meet its increasing responsibilities. The unreformed and corrupt 18th century councils would have needed more revenue to carry out their duties and this would not be granted without relinquishing some of their powers to the ratepayers. The need for a Police Commission was made more pressing because the new suburbs of the city were not included in existing cleansing and lighting schemes. Thus new

regulations were required for the suburbs and to meet this need the Police Commission was established.

The first Police Act in Glasgow, of June, 1800, created a Police Board with the power to levy rates on the assessed rental of property. Section 15 of the Act took the first step towards the creation of a sanitary department by recognising as a public duty the cleaning of the street of the town. The board had powers by decree of the Dean of Guild Court to force owners and proprietors to carry out this function. Section 22 required streets, squares and principal places of the city to be cleaned by scavengers. Yet the staff to deal with this task was totally inadequate, for by 1804 only fourteen scavengers had been appointed.[5] Between them they had to clean the twenty four wards of the city.[6] Further Police Acts were passed in 1807[7] and 1821,[8] but they were generally ineffective. The number of scavengers was increased to sixteen in 1815, but as well as their cleansing duties, they were expected to be part time policemen too.[9] The 1821 Act provided for the election of two extra ward representatives, known as "Ward Commissioners", who were empowered to superintend their districts in a general way.[10] Again, it must be said that this duty was neglected. The commissioners tended to ignore their responsibilities and even those in flagrant breach of the law, such as persons who kept pigs in their homes contrary to the bye law of December, 1831,[11] were not warned or prosecuted.

Theadvent of the 1832 Cholera epidemic gave an impetus to the sanitary reform movement. From the commencement of the outbreak, it was evident that the disease was to find the majority of its victims in the most neglected and dirty areas of the city. As usual, there was great official activity against the public enemy

"filth", but this activity did not last. It was in England, in consequence of investigations into the Poor Law, that there emerged a body of medical men centred around Edwin Chadwick, that another advance in sanitary reform was made. These men, by organising large scale investigations into the conditions of towns in England produced evidence that dirt and filth were the main cause of disease. Furthermore, they aimed to convince public opinion of the need for legislation in order to mount a concerted campaign against urban neglect. In order to have as large a body of evidence of city conditions throughout the United Kingdom as possible, the English Poor Law Commissioners, in 1839, gained permission to conduct a parallel inquiry into urban conditions in Scotland and from their investigations, the evidence they collected emerged as, "Reports on the Sanitary Conditions of the Labouring Population of Great Britain, 1842: Local Reports relating to Scotland". This work was undeniably Chadwick's masterpiece and the English version of the Sanitary Report sold many more copies than any other "blue" book yet published.[12] Chadwick hoped that this evidence would persuade Westminster to pass measures so that the urban environment might be cared for by a body of well qualified and responsible local government officers. These men would have responsibility for all sanitary and public health questions and their duties would be to detect bad conditions and carry out local public works to remedy them.

The Scottish reports revealed the existence of squalor and dirt on a massive scale, although the conclusions of the Scottish reporters were not those that Chadwick would have held. These men saw contagion as the means of spreading disease and poverty and misery the underlying causes. Many reiterated W. P. Alison's plea that

the prime need was for an attack on the causes of destitution. At the same time, however, the reports saw the need for sanitary reform, stressing the need for new institutions and laws if the effective improvements were to be carried out. The Burgh Police Acts were ineffective both because there was a lack of proper authorities to enforce them and because of the inadequate state of the law as it applied to nuisances. The report recommended for Glasgow the creation of a Sanitary Commission with executive power to appoint a medical officer, inspectors and clerks, who would prevent and remove nuisances and promote the health cleanliness and comfort of its citizens.[13] The need for this commission with new powers was made more obvious if one examined the existing law as it applied to public health.

A Police Commission or Town Council could not bring an action for an abatement of a nuisance. By law, cases involving nuisances had to be raised as private questions between individual private parties.[14] Moreover, it was almost an impossible problem to discover who was responsible for the monstrous middens in some of Glasgow back courts. In the case of property in a dilapidated state, by an Act, Charles II 1663 cap. 6, the Dean of Guild could prosecute the owner, not because the building was dilapidated but only because the building was so dilapidated that it might collapse into the street.[15] But in the case of tenement property, the Dean was faced with establishing the ownership of the property and this often proved an impossible task. Charles R. Baird stated that,

> " ... the magistrates of Glasgow have not sufficient powers to do away with nuisances or things injuriously affecting the public health." 16

This is only partly true, but there were constraints on the use

of their powers. Apart from establishing ownership of property and responsibility for nuisances, there was the cost factor involved in litigation. Simple cases cost about £200, while one memorable case raised in 1834, concluding in 1839 and including a jury trial, cost £3,500 to one side.[17]

The reports were valuable in themselves but they achieved little in the way of ameliorative legislation. None the less, another small positive step was taken in 1843 with the passing of the Glasgow Police and Statute Labour Act. This gave magistrates the power to act during periods when infectious diseases occurred and to take all measures to clean, fumigate and disinfect any lodging house where disease was reported.[18] The Act also allowed an Inspector of Cleansing to be appointed. He was expected to superintend,

> " ... watering, sweeping and cleansing closes, thoroughfares and areas, for the purpose of disinfection and otherwise promoting the health of the inhabitants therein." 19

Another benefit of the Act was that a first check on overcrowding was made by licensing common lodging houses. However, it remained a largely ineffective statute, for within four years of its passage, a great Typhus epidemic provided proof that the executive mechinery did not exist to enforce its outwardly formidable terms. All apparent gains were merely paper gains.

Continued impetus to the sanitary reform issue came from outwith Scotland. In 1844, the Health of Towns Association was formed and in the 1845 Queen's Speech, it was announced that legislation was to be prepared to promote improved sanitary conditions in working class districts.[20] As we have already seen in Chapter III, the Central Government, acting by means of Privy Council orders, was able to enforce regulations during the 1832 epidemic. But the passing of the

Nuisance Removal Act of 1846 allowed the government to interfere in local affairs in a more intermittent manner. This Act coincided with the passing of another Glasgow Police Act in July, 1846,[21] which not only consolidated the parliamentary area under one municipal government, but allowed the sanitary powers to be extended over the entire community.[22] Section 45 of the Act allowed the council to contract with the water company to obtain an adequate supply of water to cleanse drains, sewers and closes. For the first time in the city's history there existed the power of the Nuisance Removal Act to clean the city and this power was extended over the entire city by the 1846 Police Act.

The powers of the Nuisance Removal Act operated only on the order of the Privy Council. After such an order had been issued, the General Board of Health could give directions and regulations to the parochial board, who then executed them. Other powers in the Act operated constantly. For instance, if any two householders reported that a building was filthy or a nuisance existed to the Police Commissioners or Inspector of the Poor, the authority was obliged to act on the complaint and cause an investigation into the problem to be made. If the nuisance did in fact exist or a doctor's certificate was issued to the effect that a nuisance existed, the local government officers would either order the owner to remove it or take action themselves at the owner's or occupier's expense.

As we have seen, this Act was soon in operation during the 1848 Cholera epidemic when in November of that year, the General Board of Health issued sanitary regulations for Scotland. These included the cleaning of streets once every day and the inspection of buildings by Parochial Board authorities.[23] These instructions were carried out with great energy but the problem to be tackled was a great one,

because, as the Superintendant of Streets himself reported,

> " ... there were acres of stagnant water to be removed; hundreds of ashpits to be renovated; a huge amount of filth to be removed and the habits of heedless population to change which only the rigorous administration of the law would force them to do." 24

On this last point, Mr. Carrick the superintendant tried, for there were nearly two thousand cases brought to court in 1848, but too often the courts admonished the accused or overlooked their absence from court when a summons had been ignored.[25] In late December, a group of thirty men was engaged to fumigate and clean houses of Cholera victims,[26] this task having been done formerly by the police.[27]

As the Cholera epidemic passed, the city resumed its insanitary ways. Other Nuisance Removal Acts were passed until 1856, but like the first they were designed to remove nuisances, not to prevent nuisances occurring. On the whole, when Cholera was absent from the city, nuisances were only removed if they became intolerable,[28] or if the expense was not too great.[29] This was done by order of the Sanatory (sic) Committee of the Parochial Board. The situation remained like this until another Cholera epidemic of 1853-54 produced its usual frantic response. In 1855 the Glasgow Corporation Water Works Act was passed, the corporation having been forced to act because of the unsatisfactory service of the private water company. A Medical Officer of Health was appointed by the city in 1863 and a sanitary inspector, six years later. But even then, by 1870, the sanitary inspector of the city in his first report could list 7,333 complaints mostly concerning drainage, faulty privies and dungsteads, dirty stairs and closes and defective water supply,[31] in themselves proof enough that Chadwick's type of sanitary utopia was still a long way from being realised.

References to Chapter IV

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2. For a full account of 18th century sanitary reformers see the article "18th century knowledge of disease" in Proceedings of Royal Philosophical Society of Glasgow Vol. XXXVI (1904-05).

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4. 30th June, 1800 A.D. 39 & 40 Geo. III Cap. 88.

5. Brotherston J. H. F., op. cit., P.91.

6. Chalmers A. K., "The Health of Glasgow 1818 - 1925" (Glasgow) 1930, P.7.

7. A.D. 47 Geo. III, Sess. 2, Cap. 29.

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9. Brotherston J. H. F., op. cit., P.91.

10. Chalmers A. K., op. cit., P.7.

11. Minutes of the Corporation of Glasgow 2 Dec. 1831, P.180.

12. Finer S. E., "The Life & Times of Sir Edwin Chadwick" (New York & London), 1970, Pps. 209 & 210.

13. Chadwick E., "Report on the Sanitary Conditions of The Labouring Population of Great Britain 1842: Local Reports Relating to Scotland" (London), 1842 P.75.

14. Chadwick E., ibid., P.43.

15. Chadwick E., ibid., P.49.

16. Chadwick E., ibid., P.70.

17. Chadwick E., ibid., P.47.

18. Laidlaw S. A. I., "Glasgow Common Lodging Houses and The People Living in Them" (Glasgow) 1956, P.16.

19. Quoted in Laidlaw S. A. I., ibid., P.16.

20. Lubenow W. C., "The Politics of Government Growth" (Newton Abbot) 1971, P.71.

21. A.D. 9 & 10 Vict. Cap. 289.

22. Russell J. B., "The Policy and Practice of Glasgow in the Management of Epidemic Diseases" (Glasgow) 1883, P.12.

23. Glasgow Herald 17 Nov. 1848.

24. Glasgow Herald 8 Sep. 1848.

25. For a full account of the problem, an open letter from G. W. Muir to the Police Committee published in Glasgow Herald 20th Nov. 1848, should be examined.

26. Glasgow Herald 29 Dec. 1848.

27. Till 1st December, 1848, when their Police duties prevented them from doing so. No specialist house cleansing staff had been employed, up till that date.

28. Chalmers A. K., op. cit., P.10

29. See art. cit., Glasgow Herald 20 Nov. 1848.

30. Glasgow Parochial Board, Minute Book No. 1 6 Mar. 1849, P.463.

31. Ferguson T., "Scottish Social Welfare" (Edinburgh & London) 1958, P.162.

Chapter V

CHOLERA AND PUBLIC HEALTH WITHIN THE NATIONAL CONTEXT

There can be no doubt that from the early nineteenth century Scottish towns in general and Glasgow in particular, warranted the reputation of being insanitary and unhealthy. Nonetheless, these conditions were not unique to Scotland. As Dr. Neil Arnott observed,

> " ... there is perhaps no old town in Europe that does not furnish parallel examples." [1]

Slum conditions developed in both England and Scotland for much the same reasons, among them, industrial expansion, rising urban population, overcrowding, insanitary living conditions and poor water supplies.

From the beginning of the 19th century, the population of Great Britain increased at a rate of nearly 16% each decade from 1801 to 1841.[2] But the rate of increase of population in the cities was much more rapid. London's decennial growth rate was 20%, Liverpool's was 53%, Leed's 45% and Manchester's 60%,[3] while Edinburgh experienced a doubling of her population in each fifty year period from 1750 to 1850[4] her population numbering 136,548 in 1831 rising to 160,302 by 1851.[5] Such rapid growth rates produced the same interrelated problems of bad housing, poor water supplies and insanitary living conditions. Exhibiting similar percentage growth rates[6] and similar social problems, Liverpool, Manchester, Leeds and Edinburgh can meaningfully be compared to Glasgow as far as public health matters are concerned. Nonetheless, before embarking on this comparison, a cautionary note must be expressed. Detailed figures of deaths in the various cities are not available for study. Registration of deaths in England and Wales did not begin till 1837 and even then the

global figures for deaths are not always subdivided to show the numbers of fatalities caused by individual diseases. On the other hand, Cholera because of its special nature, is fairly well documented and a greater examination can be made of its impact on certain English and Scottish towns.

Cholera appeared first in Sunderland in November and Newcastle in December of 1831 and from these cities, it spread northwards along the coast to the districts of East Lothian, which were infected at the beginning of 1832. By the 14th January, there had been 47 cases and 18 deaths in Haddington.[7] Cholera reached Edinburgh at the end of January[8] and on its appearance, the Edinburgh Board of Health counselled "the upper ranks of society", to avoid contact with the working classes and to live frugally, keeping their servants at home and withholding all encouragement from beggars. Provided they observed these precautions, they were advised that they would probably remain free from the disease.[9] Edinburgh authorities carried out all the familiar precautions to minimise the affects of the epidemic and a Cholera hospital was opened at Castle Hill. Despite these, the disease lingered on in the city for most of the year. During the first five months there were, on average, five to ten cases a day, the worst day being 29th April with 26 cases. There was a lull in the disease, just as in Glasgow, during May and early June. Thereafter the epidemic once more resumed its progress. The period running from July to October was very bad, with October being the peak month. There were 214 cases for the week ending, 7th October, compared to Glasgow's 310 cases in the same week.[10] When the epidemic was finally over in November, the human cost had been 1,886 cases of whom 1,065 died.[11] Compared to Glasgow, Edinburgh was less affected by the epidemic, but a greater proportion of

people who caught the disease in Edinburgh, died. The relative figures are as follows:-

	Glasgow	Edinburgh
Population	202,000	136,000
Cholera Cases	6,208	1,886
Cholera Deaths	3,005	1,065

Source: Creighton C., II, op. cit., P.811

Thus, whereas, one in every 32.5 of Glasgow's citizens caught the disease only 1 in 72 of Edinburgh folk fell victim to it. The comparable death rates from Cholera were 14.3 per 1,000 and 7.8 per 1,000 respectively.

Every sizable town in Scotland had to contend with the epidemic, from Inverness in the north to Dumfries in the south, while the major town of Dundee experienced 512 Cholera deaths. However, there is one Scottish town which stands out because of the chronology and nature of its Cholera epidemic. The north Ayrshire town of Beith had only 6 cases in 1832, 2 in July and 4 in October. But the disease re-appeared in September, 1834 and this epidemic produced 205 cases with 105 deaths in a town of 3,500 people - a death rate of almost 30 per 1,000.[12]

In the North of England, the disease spread to the main population centres, like Manchester, from Scotland. Manchester had its first case on 17th May, 1832,[13] although the disease progressed only slowly until the end of July. During August, however, it was to reach epidemic proportions producing 1,146 cases and 492 deaths.[14] As in Glasgow, the disease was in evidence in "fever nests" such as Back Hart Street, Blakely Street and Allen's Court. The last mentioned locality had a tripe boiler's works on one side, a catgut manufacturer on the other and at the front, the River Irk.[15] On the

other hand, there were few victims among factory workers; for example of the 1,520 employed in Birley and Kirk's Mill, only four operatives contracted the disease.[16] This same phenomenon was commented upon by the General Board of Health during the second Cholera epidemic in Glasgow. Manchester authorities attempted to stem the progress of the disease by carrying out cleansing operations and provisions made for the sick included the opening of hospitals at Swan Street, Knott Mill and Chorlton-on-Medlock.[17] The distribution of all Cholera deaths throughout 1832 was 4 in May, 37 in June, 108 in July and rising to a peak of 650 in August. Thereafter the numbers declined to 261 in September, 172 in October, 33 in November and only 2 in December.[18] Translated into other terms, this meant a Cholera death rate for Manchester of 5.1 per 1,000.

Liverpool did not experience the disease until April, 1832, when it appeared in a town that was totally unprepared to deal with an epidemic. The corporation had made no preparations for cleansing or disinfecting and would not vote any money to enable these necessary operations to be carried out. The churchwardens of the town were left to carry out these tasks without the corporation's help.[19] Altogether there were 4,912 Cholera cases in Liverpool of whom 1,523 died.[20] The Cholera death rate for Liverpool was 7.5 per 1,000. In short, the 1832 Cholera epidemic in the North of England was destructive of life albeit not on the scale recorded in Glasgow, this point being underlined by the extant data.

	Population	Cholera cases	Cholera Deaths	Deaths per 1,000
Manchester	182,000		922	5.1
Liverpool	202,000	4,912	1,523	7.5
Leeds	123,000		702	5.7
Edinburgh	136,000	1,886	1,065	7.8
Glasgow	202,000	6,208	3,005	14.3

Cholera returned to Britain in 1848 and the path of the disease was similar to that which had been traced in 1832. Edinburgh had its first case on 2nd October and Leith its first on the 9th,[21] which occurred in an almost identical place, behind King Street, as the first victim in 1832.[22] This new epidemic followed a fundamentally similar pattern to that of 1832, for of the 248 cases sent to the Surgeon's Square Hospital, 42 were from Grassmarket, 37 from Cowgate and 33 from Canongate,[23] the chief Cholera areas of sixteen years earlier.[24] The second epidemic lasted till 18th January, 1849, claiming 801 victims and producing 448 deaths. In this instance, however, the authorities handled the epidemic vigorously causing a massive cleansing operation to be carried out. Above all, the Surgeon's Square Hospital was commended by the General Board of Health who pronounced it, "very good indeed".[25]

Cholera broke out in Dundee on 29th May, 1849 in Fish Street, which was a badly overcrowded and unhealthy area.[26] From mid July the disease spread rapidly in such central areas of the city as Dudhope Crescent where out of a population of 1,700 there were 57 deaths.[27] Dr. Sutherland of the General Board of Health came to Dundee on 30th July to direct preventive measures and introduced a visitation scheme similar to that which had been put to good effect in Glasgow. In all, health visitors discovered 10,792 premonitory cases, of which 705 were on the verge of Cholera.[28]

The epidemic had reached North West England by midsummer of 1849 and Manchester had its first new case in the second week in June. The history of the disease was similar to that of 1832.[29] The first death occurred in the Market Street area, a poor community of back to back houses. Almost inevitably most Cholera deaths were

to be found in areas of severe overcrowding where back to back houses were general. Until mid July there were only eight deaths but by August the disease reached epidemic proportions with 45 deaths, in September there were 607, in October, 158 and in November only one. The city adopted a scheme of preventive measures which were belatedly brought into effect on 24th September. Lime washing and disinfecting were carried out on a large scale and back courts and privies cleaned out. A medical superintendent for each of Manchester's five districts was appointed and 13 medical officers plus 9 medical visitors were employed.[30] Furthermore, five day and five night dispensaries were set up and one Cholera hospital was provided. In all the Manchester medical visitors discovered 3,807 premonitory cases.[31]

Liverpool seemed to be in a state of preparedness for the 1849 epidemic since a scheme of cleansing and disinfecting had been carried out during the great typhus epidemic of 1847 under the direction of the city's M.O.H., Dr. Duncan. Three hospitals were in readiness at Queen Ann Street, Vauxhall Road and Ansdell Street.[32] Nevertheless, despite the state of preparedness, Liverpool's Medical Relief Committee was slow to act at the beginning of the Cholera epidemic. No extra medical staff were appointed, the regular medical officers being expected to give all the treatment required. Dr. Duncan complained that the Queen Ann Street Hospital, which was opened first to deal with Cholera patients, was too far away from the areas affected by Cholera. Despite the obvious increase in Cholera cases from 16 in mid May to 187 for the week ending, 16th June, the Liverpool authorities failed to adopt the measures recommended by the General Board of Health. No lists of cases were made,

no adequate medical relief was provided, no inspection system was adopted and no medical aid stations were opened. It was in the wake of this neglect of their duties that a Special Order was issued from London requiring the Select Vestry to adopt this programme of reform.[33] Preventive measures were now employed with vigour and not before time, for by mid summer the disease was raging in the city. Two visitation schemes were carried on. Medical visitors discovered 10,452 cases of diarrhoea and 1,391 Cholera cases in three months. Dr. Duncan reported that most of these cases were associated with areas with many sanitary defects such as Burlington Street which had 144 deaths. In the same locality, eleven victims were to die in one week in a court of cellar dwellings.[34]

Leeds' first Cholera cases in July, 1849 were in the general area of York Street and Marsh Lane. The city for the purpose of fighting the disease, was divided into four medical districts with 13 medical officers and 10 assistants. Two dispensaries were set up, one of which was at the workhouse.[35] Health visitors discovered 5,129 diarrhoea cases and 1,090 cases of Cholera.

The second Cholera epidemic of 1848/49 had a greater impact on Great Britain than had the first. It was much more destructive of life, particularly in England, clearly indicating that the sanitary defects of the large cities were greater in 1849 than they had been formerly. Statistics for the epidemic reveal the full devastation, with Liverpool surpassing Glasgow as the city with the worst health record.

	Population (1851)[36]	Premonitory Cases	Cholera Cases	Cholera Deaths	Deaths per 1,000
Manchester	303,000	3,807	261	1,115	3.6
Liverpool	376,000	11,302[37]	1,391	5,308	14.1
Leeds	172,000	7,886	1,090	1,439	8.3
Edinburgh	160,000	no visitations	801	448	2.8
Glasgow	345,000	13,089	2,234	3,923	11.3 [38]

As has been seen, Cholera was responsible for a sharp rise in mortality in 1831/32 and 1848/49. Nevertheless, Cholera was not responsible for the long term rise in the death rate which had been in evidence since the 1820's. All British cities were experiencing this trend, which became more marked in the 1830's and 1840's. In this respect Edinburgh's experience was typical as Brotherston's figures show.

Edinburgh Death Rate per 1,000

1790 - 1799	27.4
1800 - 1809	25.3
1810 - 1819	25.0
1820 - 1829	26.2
1830 - 1839	29.0
1840 - 1849	27.6 [39]

Glasgow death rate during the 1820's and 1830's shows a more marked increase, from 24.4 per 1,000 in the period 1825-30, to 32.3 per 1,000 in 1835-40.[40] In the North of England towns similar death rates were in evidence. In 1841 the rates were for Leeds 27.5 per 1,000, for Manchester 33.7 per 1,000 and for Liverpool 34.7 per 1,000.[41] In some instances these figures climbed still further towards the end of the 1840's; for example in 1847 the Liverpool rate was 46 per 1,000.[42] Significantly enough in this context, Dr. W. H. Duncan, in his report to the Royal Commission on the State of Large Towns, presented a lugubrious series of statistics about life

expectancy. Whereas the average age at death of persons residing in Rutland or Wiltshire was 36½ years, that for those living in Liverpool was 17 and those in Vauxhall Ward of Liverpool, 14.[43]

The reasons for this trend are not difficult to find as there was a great increase in the incidence of relapsing fever and typhus in all British cities from 1817 onwards. Edinburgh suffered its first great fever epidemic from 1817 to 1819, when just over 3,000 cases were admitted to Edinburgh Royal Infirmary during these years. Fever became more epidemic in the 1830's with the years 1836 to 1839 being particularly bad. Admission statistics to Edinburgh and Glasgow hospitals reveal the scale of the problem.

Fever Cases

	Edinburgh Infirmary	Glasgow Infirmary
1836	652	3,125
1837	1,224	5,387
1838	2,244	2,047
1839	1,235 [44]	1,529 [45]

During the eight years from 1841 to 1848, no fewer than 17,542 fever patients were treated at Edinburgh Royal Infirmary, while typhus reached such proportions in 1847 that the number of deaths in Edinburgh exceeded those for the Cholera year of 1848 by 1,231.[46]

The English experience of disease was similar to that obtaining in these two Scottish cities. Smallpox had been a great killer at the end of the 18th century, causing 15.3% of all deaths in Manchester in the 1770's, 18% of all deaths in Liverpool[47] and 462 cases with 130 deaths in Leeds in 1781.[48] Smallpox mortality and cases declined during the Napoleonic Wars; but there were further epidemics in 1825-26 and in the mid 1830's. Statistics relating to smallpox

deaths available from annual reports of the Register General for England and Wales are tabulated below.

	1837		1838		1839		Total		
	Deaths S/pox	Total	Deaths S/pox	Total	Deaths S/pox	Total	Deaths S/pox	Total	Deaths %S/pox/All
Glsgw.[49]	351	10,270	388	6,932	406	7,525	1,145	24727	4.6
Manch.)[50]	121	4,200	538	8,835	220	9,276	879	22311	3.9
L/pool)	507	4,500	110	8,755	253	8,467	870	21722	4.0
Leeds)	15	1,800	429	4,125	174	4,690	718	10615	6.7

Abbreviations

S/pox - Smallpox.
Glsgw. - Glasgow.
Manch. - Manchester.
L/pool - Liverpool.

(English figures for 1837 are for six months only)

Since the great majority of smallpox deaths occurred in the under ten age group, it would appear that the Glasgow child had as great a chance of reaching adulthood as his North of England cousins.

Fever, that characteristic disease of the poor, was as common in English towns as it was in Glasgow and Edinburgh. It was in the same kinds of locations that the disease appeared, the overcrowded, filthy lodging houses and the squalid homes of the poor areas of Liverpool, Manchester and Leeds. In the depression year of 1794, 150 applications from fever patients were being received each week by Manchester Infirmary.[51] In Liverpool in 1823, no less than 31,500 fever cases were treated at the dispensaries and in the infirmary, a figure which represents one in four of the population.[52] In the 1830's typhus posed a graver threat as it caused more deaths than ever before. Statistics for typhus deaths reveal this trend.

Typhus deaths

	1837 (6 months)	1838	1839
Manchester	274	627	416
Liverpool	528	573	358
Leeds	71	245	150 53

However, the 1847 pandemic was the peak year for typhus in England. Coinciding with economic depression in Great Britain, for many factory workers were paid off from May, 1847 onwards,[55] the immigration of many thousands of Irish poor made a bad situation critical. According to Muir, 300,000 came to Liverpool during the year,[55] a figure which is more than three times higher than that for Glasgow. Though the majority of Irish people emigrated to U.S.A. or migrated to other towns and cities of Britain, a significant number remained in Liverpool to exacerbate its public health and poverty problems. The Liverpool Guardians were forced to provide sheds to serve as fever hospitals and ships on the Mersey were used as lazarettos. The gravity of the situation can be gauged from the mortality figures for July to September, 1847. 1,271 persons died of "fever", 157 from dysentery and 436 from diarrhoea.[56] In Manchester the typhus epidemic was also severe, the mortality figures being increased by a great number of summer diarrhoea deaths among children. On this occasion the Manchester authorities provided hospital treatment at a factory at Long Millgate, while a mill in Canal Street was used as a lodging house for Irish poor.[57]

That there was an increase in epidemic diseases in English cities cannot be gainsaid. This, in turn, produced the rising mortality rates. In seeking reasons for this trend, the standard of living in the various towns must be examined with particular reference to house building, overcrowding and general sanitation.

In the housing sector, there are two distinct but inter-related problems to be dealt with, overcrowding and insanitary living conditions. Overcrowding was causally related to the great immigration of people into the cities during the "Industrial Revolution" period. Among these immigrants there were, as in Glasgow, large numbers of Irish, who were attracted to the North of England towns both by the pull of the job opportunities and by the expulsive force of the grinding poverty of life in rural Ireland. Leeds, Liverpool and Manchester all had their Irish "quarters" and in each case it was there that overcrowding was worst. Leeds, for example, had a fairly large percentage of its population of either Irish descent or Irish born. In 1841, 5.7% of Leeds 87,000 citizens were Irish born, a figure which by 1851 had increased to 10.3%.[58] Glasgow, by comparison, had around 46,000 Irish in 1841, rising to 64,000 in 1851, a figure which represented 18% of Glasgow's population. This group settled, almost exclusively in three of Leeds' wards - the East, North East and North Wards,[59] areas notorious for their environmental deficiencies. In Manchester, the Irish immigrant was to be found in greatest numbers in the Ancoats and Angel Meadow districts, while "Little Ireland", as its name suggest, was an Irish enclave within the city. In Liverpool, the Irish were congregated in four main areas - Vauxhall, Exchange, Great George and Scotland wards.[60] While in Edinburgh the Irish tended to congregate in the older houses of the "Old Town".

It is not difficult to explain why these Irish "ghettoes" appeared in all of these towns. The new immigrant, of course, needed accommodation and to meet this basic social need housing had to be available. The dimensions of population growth have already

been stated and logically there should have been a comparable rate of increase in the stock of urban housing. But since new housing provision was largely determined by specifically economic forces, it is essential to examine the problem in some detail. In the first place, it has to be remembered that since 19th century housing was built for profit by speculative builders, one factor which would influence the supply of houses was the level of rent which a tenant could afford to pay. Scattered evidence from the 1840's period suggests that rents in English industrial towns ranged between 2/- and 4/6d. per week for working class houses.[61] For the former figure only low quality accommodation could be obtained. To obtain a reasonable net return from them, housing units must not have cost much more than £100 to build. Given that limit and also the restricted supply of land, rows of back to back houses, courtyard dwellings and blocks of tenements were the best that could be provided by a building industry which lacked the economies of large scale production, cheap credit and public subsidies. Inevitably, each builder ignored the wider problems of public health, which was affected by the adequacy or otherwise of sewage disposal, water supply and proper ventilation. Thus, new cottages built to house the new population were often of flimsy construction and had neither cellar nor foundation, drainage nor water supply, while usually there were no effective building regulations to curb the jerry-builder.[62] The new immigrant, generally unable to afford to pay a large rent, was thus forced by circumstances to become the tenant of the worst class of housing. In Manchester, according to Kay, the Irish were forced to inhabit cellars or houses which had been erected in the most insalubrious parts of the town.[63] This produced the growth of ghetto

areas, "Little Ireland" in Manchester, the dock side area of Liverpool and North Leeds.

The general housing picture in all the towns under examination, is not one of uninterrupted gloom. There was the good and the bad, the elegant and the squalid. In Edinburgh, the beautiful homes of the middle classes in the "New Town" area were much admired, but as in Glasgow, it was the former, centrally located, homes of these elements of society, which became the slums of the 19th century. In many cases these houses were "made down" by wooden partitions into family apartments about 8' square. Moreover, in general terms they were in a filthy and insanitary state.[64] There was little scope for new building in central Edinburgh's "old town", as the old buildings had been built so close together that no new homes could be erected between them.

In Liverpool, there would doubtless be some "made down" homes but the greatest housing problem was that linked to new buildings erected by speculative builders. The size of the average dwelling was from 10' to 12' square and consisted of a cellar home, a ground floor house and two houses above.[65] Many of these houses were built in courts; an 1842 survey revealed that there were 1,982 court houses, comprising 10,692 individual homes for 55,534 people. This meant that approximately 20% of Liverpool's population lived in this type of accommodation.[66] The Leeds housing scene was better for the average working class tenant than that prevailing in Liverpool. The Leeds back to back cottage was bigger, measuring 15' x 15' x 9'[67] and could be so organised to allow for some privacy.[68]

Statistics reveal, that by the middle of the 19th century, Liverpool was the most overcrowded of all the towns we have examined.

Of course, there were areas in other towns which were as bad as Liverpool's worst areas; but the overall picture reveals the extent of Liverpool's deep seated social problems. Liverpool was the most densely populated of the three north of England towns that have been examined. This density expressed in statistical form is as follows:-

Number of Inhabitants per Square Mile in 1844

	For entire city	For built up area of city
Leeds	20,892	87,256
Manchester	83,224	100,000
Liverpool	100,899	138,224 [69]

The scale of overcrowding can be measured by showing the numbers of houses available for the town's population. In 1851, Glasgow had 64,700 houses for its 329,096 citizens, giving an average density of 5.08 persons per house.[70] In Leeds, in 1851, the average was 4.8 persons per house. The worst overcrowding was in North Leeds where some 350 homes had 10 or more inhabitants, while the average for Irish residences in the city was 6.4.[71] On the other hand, in the twelve wards adjacent to Liverpool's waterfront there were on average 7.1 inhabitants per occupied house in 1841 and 7.51 per occupied house in 1851. In 1851 the comparable figure for Vauxhall Ward was 8.36 and for Great George and Pitt Street Wards, 8.33[72] and this at a time when the national average was 5.7.[73] When Handley's figures for the seven most poorly housed parishes of Glasgow are placed beside those for the twelve Liverpool wards already quoted, the plight of the Liverpudlian is revealed more starkly.

	Glasgow's 7 worst parishes	Liverpool's 12 waterside wards
	Persons per house	
1841	5.32	7.1
1851	5.31 [74]	7.51

In other words, Glasgow's position marginally improved in the 1840's, whereas Liverpool's deteriorated still further. White, in explanation of this trend, says that Liverpool had a special problem of the Irish migrants, who were forced by their economic circumstances to overcrowd their homes.[75] This was undoubtedly true, for vast numbers of Irish passed through or stayed in the city during the latter half of the 1840's.

It is impossible to quantify the degree to which people lived in squalid and insanitary conditions, but many commentators of the period reported that all was not well in the towns of the North of England. A number of these contemporary descriptions must suffice to the extent of insanitary living conditions at that time.

In the meanest of Manchester's houses, which were built so close together that often no provision could be made for drainage or privies, Dr. Kay reported that in Parliament Street there was only one privy for 380 inhabitants.[76] Furthermore, the rivers flowing alongside the textile factories were contaminated -

> "The Irk, black with the refuse of dye works erected on its banks, receives excrementious matters from some sewers in this portion of the town." 77

The sanitary problem was exacerbated by the practice of keeping pigs in the central courtyards of houses, where the pigs styes became the receptacles of dung and garbage. Finally, the authorities ignored the problem of filth in courtyards completely, as they were regarded as private property[78] and private "night soil" men had to be contracted to remove it.[79] A fundamentally similar situation prevailed in Liverpool, where although by 1844, parish dustcarts went round daily to collect refuse brought out by the tenants, the backcourts were ignored. This made the plight of the cellar dweller more desperate,

for in wet weather these cellars were often running with water, which carried with it faecal matter from the courts.[80] It was scarcely surprising that Liverpool's insanitary environment was condemned by the commissioners of The First Royal Commission on the State of Large Towns, 1844, when they referred, in scathing terms, to the accumulation of refuse in certain main streets, house drains which were not properly cleaned and scavenging services which were totally inadequate in the north end of the town.[81]

Such descriptions abound and are just as relevant to Edinburgh, where the Cowgate in wet weather, " ... became an open sewer,"[82] and Leeds, where many yards were masses of filth. One obvious factor in the creation of filthy living conditions was the poor water supply to the various towns. If water was freely available, then the level of public nuisances might have diminished and personal hygiene might have improved. But, unfortunately, water was seldom available to the poor in amounts that would have this desired effect. As the Royal Commission on the Health of Towns reported, provision of water supplies,

> " ... all stop short of ... carrying supplies ... into the habitations of poorer consumers." 83

The history of all the towns under examination as far as water supplies are concerned, is similar to that for Glasgow. For most of the first half of the century, each was supplied by a private water company and it was only when it was evident that supplies were inadequate and the water of poor quality, that the towns took steps to municipalise the service. The Corporation of Edinburgh had the duty of supplying water to the city until 1819, when the private Edinburgh Water Co. took over. This company brought its water from Crawley Springs, but this soon proved to be an inadequate source for

the city's growing population.[84] By mid century water was conveyed from the Pentland Hills in four main pipes, the supply then amounting to 5,000,000 gallons per day. However, as late as 1859, one quarter of the city's population still used well water, being unable to pay the water rate.[85] Dundee's water supply was infamous, the main source, Lady Well, being badly polluted by sewage. The reservoir for this well was separated from a slaughter house by a single wall. The town council in 1831 made a first attempt to have a municipal supply for Dundee and entered into expensive and protracted litigation with the water company. But the corporation eventually abandoned its water plans and Dundee continued to have a private supply till 1869.[86]

Liverpool Council gained powers in 1786 to supply water, but the water supply remained in private hands till 1847. In the 1840's, the Liverpool Guardian Society for the Protection of Trade examined the state of water supply to the town and found it to be not only totally inadequate but one of the most expensive in the country.[87] In 1846, the total supply was only about 3,000,000 gallons per day and the water was supplied for short periods in the day, frequently at inconvenient times. In 1847, the Liverpool Corporation bought out the private water companies and new water works, costing £1,640,000, were in operation by the 1850's.[88]

Leeds was also supplied by a private company which drew its water from the River Aire. Only a small proportion of Leeds homes could afford a piped supply and the poor had to resort to wells or water carriers, who charged 2/- per week for their service. By 1830, Aire water was unfit to drink as 200 water closets, numerous common drains and the effluent from dunghills discharged into it.

An Improvement Commission was appointed in 1835 to devise a scheme to supply water to Leeds, but because of technical and political disagreements, no progress was made until 1838. Litigation and land purchase deals hampered work on the scheme and it was not until 1843 that all work was finally completed. Forty one miles of pipe had been laid and water was brought from Arthington ten miles away and supplied to upwards of 3,000 homes at a cost of 1d. per week for houses rated at £6 and under and 6d. per week for those rated at £30 upwards. By 1851, there were 22,700 consumers supplied with piped water. In November, 1852, Leeds Corporation bought out the water company for a sum of about £¼m.[89]

Finally, Manchester's water supply suffered from all the defects of the other towns' schemes. The water works company charged 10/- per year to all who used a stand pipe and water was supplied for only a few hours a day. In some districts there was a single pump for all homes within a quarter mile radius and many people, to avoid delays at the pump, were forced to buy water from water carriers at 1d. for three gallons.[90] Those who could afford a piped supply, still had to be very careful how it was used. Mr. McKeand, a medical officer in Manchester, stated that all who could afford to do it, filtered the water before use.[91] By 1846, such was the criticism of the private water supply that schemes were prepared for buying out the water company and for the construction of new reservoirs in Longendale Valley. The Manchester Corporation Water Works Act received the Royal Assent on 30th June, 1847 and the purchase of the water company was completed on January 1st, 1851.[92]

In short, it is fair to say that the water supplies to all the cities examined were defective until mid century, for it was only

the "health of towns" issue of the 1840's which helped to secure some improvement in the situation. Strang's figures for 1859 give a fair picture of the extent of this improvement.

	Population (Strang's est.)	Daily Supply (M. gals.)	Daily Supply Per Person (gals.)	Cost of Water Works (£M.)
Manchester	500,000	11	22	1.3
Liverpool	500,000	11	22	1.64
Leeds	153,000	1.85	12	0.283
Edinburgh	215,000	4.8	22.3	0.456
Dundee	96,000	1.75	18.2	0.139
Glasgow	420,000	16.71	39.8	0.651 93

But since major improvement schemes were not mounted until the second half of the century, this would in effect mean that the poor quality water must have contributed to the spread of disease in all towns examined in the years 1800 - 1850.

Another factor contributing to the increased incidence of disease was poverty. As has already been pointed out, Dr. Cowan attributed the prevalence of epidemic diseases during the 1830's primarily to poverty and destitution and in all the epidemic fevers which affected Glasgow, the progress of the disease was slow unless it coincided with periods of depression. However, there were within the city a great number of workers whose wages were so low that they were constantly in want. This was particularly true of the thousands of hand loom weavers whose average wage in the mid 1830's ranged from about 5/- to 8/- per week.[94]

In the North of England, evidence reveals that the large population of recently arrived immigrants found themselves in a state of temporary destitution and those who settled, generally took up the less skilled jobs. Many became hand loom weavers doing coarse

grade work and as in Glasgow, they could only earn a bare subsistence wage. Plain weavers in Manchester during the 1830's earned a gross wage of 7/- to 8/-. After deductions, net earnings could be as low as 5/- to 5/6d. per week. Another group of textile workers whose standard of living was to suffer during the 1830's was the silk weavers. During the 1820's wages of 17/- a week for plain silk weaving were commonplace but a decade later these had fallen to around 8/- in 1834 and to 6/- two years later. Those who obtained work in the building industry earned good wages of 16/- to 18/- per week as bricklayers, but they were subject to seasonal redundancy and cyclical unemployment. A large number of workers, notably the Irish, found work as dock labourers and market porters. This was particularly true of Liverpool, a great commercial centre, where wages of 3/- to 3/6d. per day were paid. These rates which at first glance appear to be high, do not, however, reveal the true picture of dock workers' incomes. The dock worker was a part of an unorganised labour market and as such did not have continuity of employment. According to one Liverpool warehouse owner, a great number of dock workers had on average only two days work a week and this problem of underemployment was also faced by Manchester porters who could only get work on the three market days. Despite the high day rates paid, dock workers and market porters lived at a level similar to that of coarse grade weavers. Almost inevitably, this type of worker suffered greatly in the periods of depression as was revealed in a Liverpool survey of 1842. The survey carried out in Chisendale Street and adjacent courts revealed that of 147 heads of household interviewed, 33 were in full employment, 54 were totally unemployed and 42 had from one to three days' work per week. Aggregate family

income for 68 families ranged from 6/- to 12/- per week, income levels near or below subsistence level of existence.[95]

On the other hand, Leeds had, generally speaking a higher standard of living than the other two northern towns. Leeds' workers benefited from the situation that Leeds was a growing industrial community possessing a variegated economic structure. Leeds is synonymous with the woollen industry and broad cloth was manufactured in the city, while the districts of Calverley and Pudsey made fine and mixed cloths. Leeds also had a flax industry and a growing, broad based engineering industry. Thus, as one of the new industrial towns of the North it could provide a variety of employment in contrast to Liverpool which remained tied much more closely to a commercial role. Wages in Leeds' woollen industry tended to be higher than those paid in cotton. For example, gross wages paid to wool spinners amounted to 37/- in 1835 and 35/- in 1845 and even after deductions of 12/- for two piecers, it left the spinners comfortably off.[96] Leeds' dyers earned from 16/- to 18/- per week, a sum which was 4/- to 6/- greater than their Glasgow counterparts. According to the Census of 1851, the number of workers in the West Riding of Yorkshire was 81,221, while Baines estimated that the wages of these operatives amounted to 12/6d. per week on average for every man, woman and child in the industry,[97] a relatively high figure.

To conclude, Dr. Arnott was correct in his assumption that Glasgow was not the only unhealthy city in Europe. Glasgow contributed to its high death rates by providing a bad supply of water, causing its citizens to live in overcrowded, dirty accommodation and failing to provide a proper sanitary service, but this was also true of Leeds, Liverpool, Manchester and Edinburgh. All of these towns

had bad water supplies and it took two Cholera epidemics before the supplies were improved. All had poor quality housing with Liverpool's housing being the worst of all by the 1840's. Like Glasgow, the problems of filth, lack of sewerage and house drainage were common to the others. It was where all of these problems coincided with industrial depression and poverty, that the incidence of disease increased. Liverpool, with its huge migrant population of starving Irish, suffered the most, as was shown in the 1848/49 Cholera outbreak.

Worried by the growing death rates and the factors contributing to them, towns began improvement programmes which were generally, in chronological terms, protracted and did not produce positive results until the second half of the century. Leeds had an Improvement Commission, dating from the late 18th century, but it was used as a political platform by opponents of the corrupt Leeds Corporation. The first minor success for the commission came in 1824, when an Improvement Act gave power to demolish the Moot Hall in Briggate. Impetus was given to the improvement programme by the Leeds Improvement Act of 1846, which covered all the significant aspects of Leeds' problems - paving, sewering, lighting and cleansing. It also contained regulations for factories, workshops and smoke control, allowing the Town Council to borrow £100,000 to carry out improvement schemes. Nine committees were appointed to enforce the various aspects of the Act and among the first projects carried out was the water scheme and a sewerage project at Skinner Lane.[98]

Manchester adopted a piecemeal approach to its public health questions. The 1830 Improvement Act was the first piece of major legislation to touch on the housing problem. It placed a brake on

the worst manifestations of jerry-building and led to an improvement of the physical environment of working class districts.[99] A Paving and Soughing Committee was responsible for the gradual extension of sewerage within the city, spending £12,000 by 1843 and providing 67 miles of sewers by 1848,[100] but as in other cities, the main thoroughfares were sewered, while the poorer areas and house drains were ignored.[101] An interesting innovation in Manchester was the cleansing of streets by machine, an invention of Mr. J. Whitworth. This machine, on its first trial, gathered up fourteen tons of dirt in 6½ hours.[102] But the state of privies and back courts was a perennial problem which was not solved by the Nuisance Committees formed under the Police Act of 1844. It required the Sanitary Improvement Act of 1845 before a real start could be made on the problem of filth. The Borough Council undertook the cleansing of privies and the service began in July, 1846.[103]

Liverpool had been a pioneer in the provision of baths and washhouses, with its first institutions opened in 1794. These were demolished in 1820, re-erected in 1828 and demolished in 1836, when Liverpool Corporation ceased to have an interest in them. In 1842, new baths and wash houses were opened at Frederick Street and others followed, in Paul Street in 1846 and Cornwallis Street in 1851.[104] In 1822, a Highway Board was formed with responsibilities for paving and sewerage. Actual construction of sewers did not begin till 1830 and by 1846, 53 miles had been completed. In 1835, the Town Council took over all responsibility for street and general cleansing,[105] but filth proved to be an ever present problem till the second part of the century. Moreover, the sewerage programme had been carried on, in the main, in middle class districts, while many

houses in the poorer areas were still without privies or had open cesspools in their yards. In the housing area, an 1825 Act aimed to control new building and two surveyors of building were appointed, but they were only concerned with structural soundness. An 1842 Act extended building regulations to cover such items as street widths, court and house sizes, with a new Health Committee set up to administer this Act. The 1846 Liverpool Sanitary Act went farthest in the city's bid to promote urban improvement. Regulations governing cellar dwellings, new streets and sanitary matters were embodied in this statute, but the major landmark of the Act was that it allowed for the appointment of a Borough Engineer, Medical Officer of Health and Inspector of Nuisances.[106] The appointment of a Medical Officer of Health at a salary of £750 per annum, was the first appointment of its kind in Britain.

To conclude this dissertation, one must return to the central theme of the work, Cholera. It was the nature of this disease and the panic that it caused that made it so interesting to contemporary commentators and thus more interesting to social historians.

The history of Cholera in Glasgow raises one important question - why was the death rate from Cholera during the 1832 epidemic nearly twice as high as that in any other town which has been examined? A death rate of 14.3 per 1,000 for Glasgow compared to Liverpool's 7.5 per 1,000 must be explained. Since Cholera, in its later stages, is a water borne disease, this might suggest that as Glasgow's water supply, drawn from the polluted River Clyde, was so impure, that this was the explanation. But this is too facile, for Leeds drew its water from the contaminated River Aire and Liverpool, Manchester Dundee and Edinburgh all had deficient and impure supplies.

According to Dr. J. Cleland's enumeration of Glasgow's population taken in 1831, the city then had 35,554 Irish inhabitants, a figure which represents nearly 20% of Glasgow's population. As has been stated, the Irish tended to congregate in the poorest accommodation available. Also, the Irish often took up hand loom weaving as a means of earning a living, a craft which was suffering from an excess of workers at this time and as a result the wage rates were appalingly low, about 5/- to 7/6d. a week for plain weaving. Here we have the classic conditions for the growth of disease, poverty, overcrowding - there was an average of 4.55 inhabitants per house in Glasgow in 1831, and insanitary living conditions - a poor water supply helped produce this. In England, the worst of these conditions were yet to come. Leeds, as has already been stated, had a higher wage economy than elsewhere, Liverpool's housing and overcrowding problem was not as bad in 1832 as it was to be in 1848/49.

In 1848/49, during the second Cholera epidemic, Glasgow's Cholera mortality rate fell to 11.3 per 1,000, while Liverpool's increased markedly to 14.1 per 1,000. Factors which might have caused this decline in Glasgow, but which can never be measured, are the establishment of the Gorbals Gravitation Water Co. in 1846 and the speed with which public health measures were adopted at the outset of the epidemic in 1848. This is in marked contrast to Liverpool whose environmental deficiencies were added to by the corporation's tardiness in enforcing public health measures.

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	1801	1811	1821	1831	1841	1851	1801/1851 % age increase
Glasgow	77,000	101,000	147,000	202,000	275,000	345,000	448%
Leeds	53,000	63,000	84,000	123,000	152,000	172,000	330%
Liverpool	82,000	104,000	138,000	200,000	286,000	376,000	450%
Manchester	75,000	89,000	126,000	182,000	235,000	303,000	404%
Edinburgh	81,000	96,000	117,000	135,000	148,000	160,000	

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● — 10 Cholera Deaths 1832
● — Typhus Cases 1843

GLASGOW and SUBURBS 1843

Appendix A1

APPENDIX A2

Locations of Cholera deaths in Glasgow from 7th August, 1832 till 7th November, 1832.

Argyle Street	14	Gibson Street	5
Albion Street Hospital	5	Glassford Street	4
Barrack Street	3	Goosedubbs	1
Bell Street	7	Graham Street	4
Blackfriars	3	Great Hamilton Street	3
Bridewell	1	Greenhead Street	1
Bridgegate	38	Greyfriars Wynd	5
Broomielaw	20	Hamilton Street	1
Candleriggs	3	Havannah	14
Canon Street	5	High Street	87
Carrick Street	4	Hill Street	1
Castle Street	6	House of Refuge	29
Cavalry Barracks	13	Hunter Street	3
Charlotte Street	5	Hutcheson Street	1
Claythorn Street	4	Infantry Barracks	4
Clyde Street	3	Ingram Street	3
College Street	9	Jamaica Street	3
Cochrane Street	1	Jeffrey's Close	4
Dalmarnock Street	1	John Street	9
Dean Street	7	Kent Street	2
Dempster Street	13	King Street	17
Duke Street	19	Ladywell	5
Drygate	32	Love Loan	5
Dundas Street	1	Little Dowhill	13
Dunlop Street	6	MacAlpine Street	11
Frederick Street	5	Market Lane	2
Gallowgate	68	Maxwell Street	3
Gargadhill	3	Miller Street	4
George Street	33	Nelson Street	2
New Vennal	20	Saint Enoch Wynd	10
New Wynd	17	Saint Mungo's Lane	9
North Frederick Street	3	Saltmarket	29

Old Vennal	1	Shaw Street	2
Old Wynd	23	Shuttle Street	16
Oswald Street	1	Spoutmouth	11
Parkhouse Lane	4	Stirling Street	9
Portland Place	4	Stockwell Street	30
Portland Street	2	Taylor Street	5
Port Dunlop	3	Townhead Street	4
Princes Street	3	Trongate	27
Provanmill Road	2	Virginia Street	1
Queen Street	3	Weaver Street	6
Richmond Street	2	York Street	5
Robertson Street	3		
Rottenrow	17		

Source:- Corkindale J. Cholera Register
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APPENDIX B1

Cholera in Glasgow, 1832 (population 202,426)

Week ending	New cases	Deaths	Week ending	New cases	Deaths	Week ending	New cases	Deaths
Feb. 19	62	21	May 20	41	31	Aug. 19	483	228
26	113	46	27	21	11	26	419	178
Mar. 4	68	39	June 3	6	7	Sept. 2	231	122
11	85	60	10	45	17	9	117	50
18	94	50	17	72	39	16	60	31
25	150	61	24	168	70	23	84	33
April 1	138	74	July 1	127	72	30	165	90
8	112	57	8	131	62	Oct. 7	310	140
15	99	50	15	143	68	14	173	95
22	120	60	22	229	101	21	95	58
29	71	40	29	218	113	28	47	29
May 6	71	39	Aug. 5	817	356	Nov. 4	41	18
13	73	39	12	699	339	11	10	11
						Total	6,208	3,005

Board of Health returns quoted in
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APPENDIX B2

Glasgow Mortality in 1832

	All deaths	Cholera deaths		All deaths	Cholera deaths
Jan.	824	—	July	990	441
Feb.	874	87	Aug.	1,755	1,222
March	955	264	Sept.	749	243
April	816	229	Oct.	755	334
May	677	125	Nov.	529	25
June	783	196	Dec.	571	—
				10,278	3,166

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