

P ublic Health in Glasgow

T. S. Wilson

1802



2002

In his book, *A Tour Through The Whole Island Of Great Britain*, published in 1724–26, Daniel Defoe described Glasgow in very favourable terms: ‘Glasgow is indeed a very fine city; the four principal streets are fairest for breadth, and the finest built that I have seen in one city together; ... in a word it is the cleanest, and beautifullest and best built city in Britain, London excepted.’ Even in such ‘idyllic situations’, housing conditions could be poor. Across Scotland, infectious diseases were rampant and there was a high infant mortality rate. Deaths in childbirth or from infections associated with childbirth were common. In Edinburgh, for example, Sir Walter Scott’s parents resided in College Wynd. The place was foul-smelling and disease-ridden with a high infant mortality rate. The first six children born to Scott’s mother died in infancy. Walter was the middle of the next five boys that were born. There was one girl, Ann, never very robust, who died in her thirties. Scott himself developed poliomyelitis at the age of 18 months.

Most people at this time lived in the country and were engaged in agricultural pursuits, or in service activities. The towns were small and the work was largely about government or the support of agriculture. In the early 18th century, trade was with the continent and the West Indies. ‘Tobacco lords’ produced large

fortunes that were invested in the city or in estates nearby. The sugar trade and the tanning of leather also produced large fortunes for the merchant class. However, this great period of commercial activity in Glasgow and Scotland was brought to an end by the American Declaration of Independence in 1783.

The next great development came with the manufacture of cotton goods, which was followed in turn by the coal, iron and steel era. James Watt with his improved steam engine paved the way for massive economic, social and demographic changes. People came in droves to Glasgow and to other Scottish towns where employment was readily available. This rural exodus was driven by the Agricultural Revolution, which was lessening the need for labour in the fields, and by the Highland clearances for sheep farming. Railways were also expanding throughout in this period which acted as a source of employment and also increased people's mobility. Following the Irish potato famine of the mid 1840s, the cities were also swollen by large numbers of migrants from across the water.

Consequently, Glasgow's population expanded rapidly during the 19th century, increasing from 414,000 in 1863 to over 724,000 in 1898. Those who could afford it tended to move out westward to better housing, leaving poorer quality and greatly overcrowded accommodation for those who could not. Housing conditions in these poorer districts were dreadful and proved fertile breeding grounds for infection and disease. Dry water closets, with no running water available were the norm, resulting in waste being dumped into the streets. Consequently, epidemic diseases such as cholera, typhus, smallpox, scarlet fever and whooping cough were rampant and while they could affect all social classes, they were most prevalent amongst the poor. Furthermore, because of smoke pollution (which reduced the preventative action of sunlight) rickets was a common occurrence amongst the populace, as was chronic bronchitis and lung cancer amongst younger people.

While the 19th century witnessed an explosion in public health problems, it also saw a gradual change in the community's

approach to dealing with them. By the end of the century, the old negative approach involving the isolation of obvious sources of infection and spasmodic attempts to abate nuisances was replaced by one based on the recognition of the benefits of attacking systematically the conditions which promoted ill health.

The 1860s had seen cities such as Edinburgh and Glasgow appoint Medical Officers of Health (MOH), but smaller areas were slower to follow and by the 1870, it was apparent that many local authorities were not able themselves to develop sanitary reform. The Local Government (Scotland) Act 1889 created district committees and county councils (to whom the powers and duties of the old parochial authorities were transferred). The act required the new authorities to employ both a Medical Officer of Health and a Sanitary Inspector whose powers and responsibilities were to be prescribed by the Board of Supervisors. The problems in smaller burghs were alleviated by the passage of the Burgh Police Act of 1892, which required all burghs to appoint Medical Officers of Health and Sanitary Inspectors. The Act laid down requirements relating to the laying out of streets, stairs and houses, the erection of new buildings, the height of ceilings, the lighting and ventilation of rooms, and the provision of water supplies and sewerage. At this time, seven or more inhabitants could apply to the sheriff to have their area declared a police burgh, and if the population was found to be in excess of 2000, the sheriff was compelled to grant the application. Dr John C. McVail, the MOH of Dunbartonshire argued that with the creation of huge sanitary areas under the 1889 Local Government Act, the need for the formation of small burghs had disappeared. These criticisms by McVail were to go unheeded until 1929.

Furthermore, the Public Health (Scotland) Act 1897 authorised the Local Government Board of Scotland to instruct local authorities to provide hospital accommodation for those suffering from infectious diseases and made mandatory the provisions of the Infectious Diseases (Notification) Act of 1889. As a result, cases of smallpox, cholera, diphtheria, membranous croup,

erysipelas, scarlet fever, and other fevers including typhus, typhoid, enteric, relapsing and puerperal, were to be notified immediately to the MOH in order that action might be taken to prevent the spread of disease. The reports of the Medical Officers of Health annually detailed the many problems still to be tackled. How some of these problems were dealt with in the city of Glasgow will now be dealt with.

WATER SUPPLIES

In the early 19th century, Glasgow received its public water supplies from two water companies which obtained water from the Clyde, and from numerous wells around the city. In the 1850s, the city fathers decided to develop the Loch Katrine supply which became operational by 1859. This large civic enterprise largely corrected the cholera epidemics, which periodically occurred about this time.

However, the extent to which public water supplies can be further managed to provide health benefits to their users has been a hotly contested issue throughout the second half of the 20th century. In 1939 as a wartime precaution against bacteriological warfare, the water was treated with chlorine and in the post-war years, the medical authorities resisted attempts to stop this treatment.

In the 1950s, the Scottish Department of Health initiated an investigation into the effect of fluoridation of water supplies upon dental health in Kilmarnock and Ayr with Kilmarnock's water being fluoridated while the Ayr supply was not. The tests proved successful but in spite of this the town council discontinued fluoride treatment due to pressure from the anti-fluoride lobby.

In the 1960s, Glasgow and Edinburgh rejected proposals to treat its water supplies with fluoride. Glasgow Corporation in the early 1970s agreed to fluoridation but no action was taken as neighbouring authorities disagreed. In the late 1970s, agreement was reached between Strathclyde Region and the four health

authorities concerned but anti-fluoride activists halted the work. The case came before Lord Jauncey who, in spite of evidence that the proposed concentration of fluoride carried no risk to health and would reduce the dental caries rate, judged that local authorities were not permitted by the Water (Scotland) Act to fluoride the water supplies. Although this was overturned by the passing of the Water (Fluoride) Act of 1985, no action was taken so that people who regularly brush their teeth with toothpaste containing fluoride benefit, but those who do not suffer as before.

Reservoirs in Glasgow from the 1980s had trouble with seagull guano, which resulted from a population explosion of these birds. This problem was contained by chlorination of the supply, which dealt with bacteriological contamination

In 1988, the first outbreak of cryptosporidiosis traced to the mains water supply was recorded in the United Kingdom. This protozoan was first recognised as a human pathogen in 1976 and is now the most frequently identified protozoan cause of gastrointestinal infection in the UK. This organism is found in cattle in sheep and chlorination does not block off this infection; filtration of water is required. The Loch Katrine supply is not filtered and in 2002, an outbreak of the condition occurred within the loch's distribution area, caused by contamination at the Milngavie reservoir. Plans for a new filtration centre are under way but have met with local opposition.

A further problem facing Glasgow's water supplies was found in the pipes actually carrying it to the populace. The Loch Katrine supply had a pH of 6.5 which made it aggressive to the lead pipes which were commonplace in domestic plumbing prior to the 1970s. In 1973 the city council decided that all municipal houses undergoing refurbishment should have lead pipes and tanks replaced and in 1980, the government offered grants to private householders to replace lead pipes and tanks. The use of calcium and phosphate has greatly reduced the plumbo-solvency of Glasgow's water source. The pH of the Loch Katrine water supplied now is 9.

DRAINAGE AND SEWERAGE

In Glasgow, the sewerage works at Dalmarnock and Shieldhall that opened in 1894 and 1910 respectively both employed the chemical precipitation method. In the 1970s the Corporation of Glasgow decided to rebuild Dalmarnock Sewage Works and introduce a complete activated sludge plant that opened in 1968. This has also been done at Shieldhall. Sludge disposal at sea has been abandoned under EC regulation in favour of land disposal. One major problem of sewerage works is the pronounced odour in the adjacent districts, particularly in good summer weather.

HOUSING

Poor housing was associated with the prevalence of many infectious diseases and in particular, with pulmonary tuberculosis. External toilets with faulty drains were a common source of bacilliary dysentery and other bowel infections. Dr James Burn Russell, the city's Medical Officer of Health (MOH), delivered a lecture entitled *Life in One Room* to the Park Church Literary Institute, Glasgow on 27th February 1888. This lecture shocked the good people of the district about the dreadful conditions of the populace residing barely a half-mile from their own houses.

In Glasgow, the proportion of households without fixed baths and exclusive access to water closets fell from 56% and 37% respectively in 1951 to 4.7% and 0.8% in 1982. At the same time, the percentage of one- and two-apartment houses fell from 11% and 36.3% respectively in 1951 to 2.3% and 16.1% respectively in 1981. These figures have greatly improved since.

ATMOSPHERIC POLLUTION AND CLEAN AIR

The 19th century industrial revolution, which was largely powered by steam and fuelled by coal, resulted in a great increase in the levels of atmospheric pollution. James Russell in 1895 had emphasised the necessity of clean air and administrative action

was first taken against industrial pollutants. In Glasgow, measurements of solid deposits from the atmosphere were made and persistent offenders were prosecuted. Boiler firemen also received instruction on efficient methods of stoking while smoke inspectors (who were usually marine engineers) were appointed.

Subsequently, the problem became the domestic fireplace rather than industrial furnaces. The Clean Air Act of 1956 tightened controls on industrial smoke emissions and authorised local authorities to issue orders declaring the whole or any part of their district a Smoke Control District. The success in Glasgow has been dramatic.

The problem of air pollution is tending to return, but this time due to the exhaust gases from motor vehicles. More efficient engines and filter systems are being developed.

FOOD AND MILK SUPPLIES

For centuries, the supply of unwholesome foodstuffs had been considered a criminal offense and in the 19th century, with advances in medical knowledge, surveillance became much greater. The Public Health Acts in the 19th century allowed local government officers to inspect animals and foodstuffs and to destroy those foods unfit for human consumption.

Tighter regulations were brought in over the years to govern the preparation and supply of foods. Parliament passed the Food and Drugs (Scotland) Act in 1956 which authorised the issue of food hygiene regulations. Food poisoning became notifiable and hygienic handling of food became obligatory. Adequate washing facilities were to be provided for food handlers and for equipment and utensils used in commercial food premises. The Poultry Meat (Hygiene) (Scotland) regulations of 1976 required poultry only to be slaughtered and cut up in premises licensed for the purpose. Crown immunity for kitchens in hospitals and other publicly owned premises was abolished. Various milk and dairy Acts over the years gradually improved the quality of milk on sale. Between

1946 and 1956 the proportion of tuberculin tested and certified milk rose from 56.8% of total milk sales to 96.4% while by 1956 75% of all milk sold in Scotland was pasteurised. In 1980 the Milk (Special Designation) (Scotland) Order made pasteurisation obligatory for all milk sold in Scotland after August 1983. Scotland was well in advance of England in this matter.

THE CONTROL OF INFECTIOUS DISEASES

Outbreaks of infectious diseases such as cholera, typhus, and smallpox were commonplace in 19th-century Glasgow. The product of unclean water, poor housing conditions and general hygiene problems, they resulted in many fatalities. In the city, Belvedere, Ruchill and Knightswood hospitals were available for the treatment of infectious diseases. Bacteriological services were available in Glasgow, Lanarkshire and Aberdeen. Tuberculosis dispensaries and sanatoria for early cases and hospital accommodation for the isolation of advanced cases were provided. Treatment centres were also provided for venereal disease cases. The infectious disease service had made a significant contribution to the health of the people of Glasgow but improvements in housing conditions, nutrition and general standards of living also helped greatly.

Diphtheria immunisation became available in the 1920s and was tried for a period in 1924 in Aberdeenshire and Edinburgh on children who had been Shick-tested and found to have no immunity to the disease. Yet little progress had been made nationwide in spite of encouragement by the central authorities. It took the dramatic rise of diphtheria between 1939 and 1940 to change the attitude to immunisation. In Glasgow in 1939, there were 3,144 cases with 193 deaths, in 1940, 5,910 cases with 226 deaths, and in 1941 4,039 cases with 155 deaths. The campaign was started in Glasgow in 1940 and by 1956, diphtheria had been eliminated from the city. These campaigns were later extended in 1949 to whooping cough and tetanus with great success.

Whooping cough immunisation met with considerable public unrest and Scotland was again very slow in adopting BCG vaccination. In 1951, 52 of the 55 local health services took powers to undertake BCG vaccination. In 1952 the scheme was extended to children approaching school-leaving age. Later, the scheme was extended to infants, students and hospital workers. BCG assisted greatly in bringing about the decline in tuberculosis mortality.

Mass radiography was introduced in the mid 1940s because of the high occurrence of pulmonary tuberculosis during the Second World War. Between 11th March 1957 and 12th April 1957 the Glasgow X-ray campaign against tuberculosis took place. During this period, 714,915 people were X-rayed by 37 MMR units; 2,842 active cases of tuberculosis and 5,379 cases requiring observation were discovered. The campaign was organised by the Corporation of the City of Glasgow and the Western Regional Hospital Board in co-operation with the Department of Health for Scotland.

The development of streptomycin in 1944 and other chemotherapeutic agents also greatly helped in eradicating TB. The work of Professor Sir John Crofton at Edinburgh University in devising drug treatments for the disease received international recognition. Also, the compulsory pasteurisation of all milk supplies in Scotland and the tubercular testing of cows eliminated TB derived from bovine agents.

Prior to the Second World War, Britain did not have a high incidence of poliomyelitis. However, major epidemics occurred in 1947, 1950 and 1955. In 1956, vaccination using the Salk vaccine was started in Glasgow, and in 1962, the Sabin oral poliomyelitis vaccine was introduced. The public actively co-operated and the disease was eliminated from the city. Later, campaigns against measles and rubella were established. For various reasons parents resisted measles vaccine. In 1970, it was recommended that girls between the ages of 11 and 14 should be immunised with live attenuated rubella vaccine. Boys were to be allowed to obtain natural infection. To begin with, the response was again disappointing, but eventually reached 8,000. In more recent

times a vaccine against one strain of meningococcus, measles and rubella has been used. Again, there is controversy, largely related to alleged complications of the procedure.

The great expansion of foreign travel has exposed more and more people to diseases of tropical or sub-tropical origin. The infectious diseases' hospitals of the past have been abolished and smaller units with a new breed of infectious disease experts have been founded.

THE LOCAL GOVERNMENT ACT 1929

The Local Government Act 1929 brought together under the new local authorities (that is, the cities, county councils and larger burghs) the duties of the existing local authorities and the parish councils. The general administration of services became more integrated and better managed. Universities were brought into the system as advisors.

The functions of locally elected boards dealing with the poor law, with lunacy and with mental deficiency were transferred to the county councils and burgh councils. These became the new units of administration with the qualification that burghs with a population of less than 20,000 had to forfeit their autonomy and merge with the county councils they were situated in.

The effect of these changes on health service administration were that local health departments were to consist of general public health administration; education, health, maternity and child health services; mental services; and general hospital and outdoor medical services. This meant the transfer of poor law general hospitals, mental hospitals and institutions for mental defectives to public health departments. Staff of the education health services were also transferred to the public health departments.

During the period 1930 to 1948, the Corporation of Glasgow and the University of Glasgow co-operated in the upgrading of the old Parish Hospitals. Great improvements in the services

available at Stobhill, the Southern General, and other hospitals occurred. Professor Noah Morris of the chair of *Materia Medica* took a leading part in the transformation achieved.

The Outdoor Medical Service looked after the poorer members of the community until 1948.

THE NATIONAL HEALTH (SCOTLAND) ACT 1947

The National Health Service (Scotland) Act 1947 transferred all local authority hospitals and services such as bacteriology to Regional Health Boards. These boards also assumed responsibility for all voluntary hospitals in Scotland.

The Corporation of Glasgow and other local authorities were left with sanitary supervision, prevention of infectious diseases, local maternity and child health services and the school health services. The Medical Officer of Health and the Sanitary Inspector still retained their statutory offices.

From 1949, the Glasgow Public Health Department investigated the high accident and absentee rates amongst workers employed at an east end weaving mill and found that poor air quality, bad lighting and lack of seats were to blame. When these defects were remedied, the accident and sickness rates were reduced dramatically. Similar investigations took place amongst the 2,400 cleansing workers. An investigation into sewer men was reported to the Health and Welfare Committee. James H. Bell received a high commendation Doctorate of Medicine for his thesis on this matter. These and other works of Glasgow occupational health ventures were given in evidence to the Dale Committee in 1951. This committee recommended that large local authorities should conduct occupational health experiments, as in Glasgow. Glasgow remained the only one to take up the challenge.

Dr Andrew Meiklejohn was a leading force nationally and internationally in industrial medicine in the west of Scotland. When he retired, the leadership in this field passed to Alexander Mair, Professor of Public Health and Social Medicine at Dundee.

One problem practically unknown 40 years ago was mesothelioma, caused by exposure to asbestos. Great quantities of asbestos were used in ship building and other heavy engineering industries for lagging and other purposes. Within the last 20 years, this disease has become a major problem, largely amongst ex-shipyards workers and their families. Asbestos is no longer used but the medical problems due to it will exist for years to come.

HEALTH EDUCATION

Health education at child health- and school health clinics has been greatly developed. Specialist services are now available. These people supplement the activities of health visitors, nurses and medical officers. The scope of activity has been greatly expanded.

PUBLIC HEALTH MEDICINE

Under the 1974 health service reorganisation, the post of MOH was abolished. Health boards were established and the tripartite system of medical administration was abolished. The community health specialist (now public health medicine specialist) has been given the job of investigating and assessing the health needs of the population and establishing priorities. In the rapidly changing health service they have a challenging and important role.

The term 'public health' has evolved over the past 40 years to 'social medicine' and later to 'community medicine' but is now coming full circle: the chief administrative medical officer of a health board has been given the additional title of Director of Public Health Medicine.

In the 1970s, many people were beginning to think that infectious diseases were becoming things of the past. However, wild nature has other ideas as the number of new diseases such as Legionnaire's disease, hepatitis A, B and C and acquired immune deficiency syndrome (AIDS) have come forward while some old diseases such as TB are beginning to return.

FURTHER READING

- The Glasgow Duplicate Diet Study 1979-80* Pollution Report no. 111982, Department of the Environment and M.A.F.F.
- Glasgow X-Ray Campaign Against Tuberculosis 11/3/57 - 12/4/57*
Glasgow Corporation Printing Department
- A Study of Congenital Malformations of the Central Nervous System Among Glasgow Births 1964-1968* Health Bulletin, Edinburgh
Reports of M.O.H. Glasgow Annual Reports; last report 1972
- Bell J. H. *The Sewerman at Work: Report of the Investigation into the Health and Conditions of Work of Glasgow Sewermen Corporation of Glasgow*, Health and Welfare Department 1952
- Cathcart E. P. *Unemployment and Health* Proceedings of the Royal Philosophical Society of Glasgow Vol. LXI 1932-33, 1933-34
- Chalmers A. K. *The Health of Glasgow 1818-1925* Corporation of Glasgow 1930
- Checkland O. & Lamb M. (eds) *Health Care as Social History — The Glasgow Case* Aberdeen University press 1982
- Checkland S. G. *The Upas Tree, Glasgow 1875-1975* University of Glasgow Press 1981
- Ferguson T. *Scottish Social Welfare 1864-1914* E & S Livingstone 1958
- Ferguson T. *The Dawn of Scottish Social Welfare* Thomas Nelson 1948
- Goldberg Sir A. *Why did Glasgow Not Consult Christison of Edinburgh in 1854* Edinburgh Medicine no. 11 Sept/Oct 1983.
- MacGregor A. *Public Health in Glasgow 1905-1946* E & S Livingstone Ltd 1967
- MacGregor A. S. M. *Co-ordination of the Health Services under the Local Government Act* Proceedings of the Royal Philosophical Society of Glasgow Vol. LX 1931-32

Robertson E. *Glasgow's Doctor: James Burn Russell 1837–1904*
Tuckwell Press 1998

Russell J. B. *Life in One Room* in Robertson E. *The Glasgow Doctor*

Russell J. B. *The Evolution of the Function of Public Health*
Administration 1895

Wilson T. S. *Clearing the Air* in Lenihan J. & Fletcher W. (eds)
Health and the Environment Vol. 3 Blackie 1976

Johnston R. & McIvor A. *Lethal Work – A History of the Asbestos*
Tragedy in Scotland Tuckwell Press 2000