

THE DEVELOPMENT OF MUNICIPAL INFANT WELFARE SERVICES IN ST HELENS, 1868–1914

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The subject of infant mortality in England and Wales has been the target of much recent research. Important differences between urban and rural areas as well as between different social groups have begun to be teased out of the national totals.¹ Others have turned their attention to the decline in the infant mortality rate (I.M.R.) which took place after 1900. Woods, Patterson, and Woodward have suggested that this might be more properly set in a European rather than a national context, and as such they seek international explanations rather than an uncertain synthesis of local experiences. They further argue that the secular trend had been downward for perhaps two decades before the new century, and that the high rate of mortality from diarrhoeal diseases in the larger cities during the 1890s disguised this fall from contemporaries.² This kind of statistical sophistication was unknown at the end of the nineteenth century. From the late 1890s the annual totals produced by the Registrar-General

- 1 C. H. Lee, 'Regional inequalities in infant mortality in Britain, 1861–1971: patterns and hypotheses', *Population Studies*, XLV (1991), pp. 55–65; N. Williams, 'Death in its season: class, environment and the mortality of infants in nineteenth-century Sheffield', *Social History of Medicine*, V (1992), pp. 71–94.
- 2 R. I. Woods, P. A. Patterson and J. H. Woodward, 'The causes of rapid infant mortality decline in England and Wales, 1861–1921', Pt. 1, *Population Studies*, XLII (1988), pp. 343–366; Pt. 2, *Population Studies*, XLIII (1989), pp. 113–132.

became the cause of considerable concern. They showed that between 1876 and 1897 the crude birth rate per 1,000 of the population fell by some 14%, a decline which was second only to that experienced in France of the countries in western Europe. During the same period, while the general mortality rate had decreased by 17%, the I.M.R. had actually increased by nearly 7%.³

The fear of population decline was compounded by uneasiness that the quality of the population was also under threat: in some quarters it was argued that the 'better classes' were limiting the size of their families whereas those of the urban poor remained large.⁴ Others were convinced that inadequate housing, overcrowding, pollution, adulterated food, and the other components of urban life were responsible for producing a stunted, feeble generation whose children would be similarly retarded. Whilst Social Darwinists might argue that such conditions would actually help to eliminate the biologically unfit, the development of eugenics allowed others to claim that the national stock could be maintained and improved only by encouraging the reproduction of those considered most 'desirable', and by discouraging it in others. Such ideas were developed within a context of national decline. The emergence of new industrial and military powers such as Germany and Japan were seen as threatening Britain's position in the world. The need to improve the quality of the race appeared to have been given additional urgency by the second Boer War, where early defeats were explained not as the result of maladministration or tactical error but by national decay.⁵ This coincided with concern at the number of London's elementary schoolchildren who appeared unable to cope educationally with the curriculum; this too was thought to stem from the hazards of urban life.⁶ Such pressures contributed to the appointment of

3 D. Dwork, *War is good for babies and other young children* (London, 1987), pp. 4-6.

4 R. A. Soloway, *Birth control and the population question in England, 1877-1930* (University of North Carolina, 1981).

5 T. Pakenham, *The Boer War* (London, 1988), pp. 246-249.

6 B. J. Harris, 'Medical inspection and the nutrition of schoolchildren in Britain, 1900-1950', (unpub. Ph.D. thesis, University of London, 1988), pp. 30-35.

the Inter-Departmental Committee on Physical Deterioration, whose final report appeared in July 1904. Its members found no evidence of degeneration, and they proposed a series of remedial measures of environmental improvement and personal health care, particularly for children.

The report has been seen as a catalyst in the evolution of the public health service. The discoveries made by bacteriologists into the aetiology of many infectious diseases had already encouraged some medical officers of health to re-evaluate their work by allowing them to transfer attention towards individuals rather than the districts in which they lived. In addition the leadership of the Society of Medical Officers of Health (S.M.O.H.) sought to attach such new and expanding areas of work to that of their own members. The spectre of physical deterioration helped them, legitimately, to embrace previously neglected topics such as diet, the health of children, dental care, and school hygiene.⁷ Amongst the first of the areas to receive attention was the preservation of infant life, and it was here that St Helens was to make its most famous contribution with the formation of the first municipal infants' milk depot in the United Kingdom. This essay examines the circumstances in which this and other decisions concerned with infant welfare were made.

A major component of the high national I.M.R. were those deaths attributed to diarrhoea. Although problems of nomenclature and classification existed throughout this period, by the first years of the century epidemiologists had concluded as follows: mortality was most frequent amongst the poor and the illegitimate; it was associated with urban conditions, and possibly with house-type and method of sewage removal; it was mainly found in the third quarter of the year, and mortality worsened in hot, dry summers; it was also thought to be more common where the subsoil could not be easily cleaned by rainfall. The ways in which such circumstances contributed to any outbreak, however, were uncertain and bacteriologists had

7 A. Bostock Hill, 'Evolution of the medical officer of health', *Public Health*, XXV (1911), pp. 43-50; D. E. Watkins, 'The English revolution in social medicine, 1889-1911' (unpub. Ph.D. thesis, University of London, 1984); D. Porter (née Watkins) and R. Porter, 'What was social medicine? An historiographical essay', *Journal of Historical Sociology*, I (1988), pp. 90-106.

yet to identify the specific cause.⁸ Some medical officers had noted a disproportionately high number of diarrhoea deaths amongst infants who had been bottle-fed. The absence of breast milk seemed to pose few problems for the children of wealthy parents or in homes where care could be exercised in the preparation of feeds. The pollution of cows' milk, then, appeared more certain, but the place of adulteration proved difficult to determine.⁹ The alternatives to cows' milk might be even more perilous. Patent foods, available from the 1860s, contained a high quantity of vegetable matter and small quantity of protein and fat, making them most unsuitable. Tinned condensed milk had appeared in the 1890s, but this was easily contaminated after opening, and poverty might dictate that a tin could remain in use for several days. The cheaper skimmed and sweetened variety was also nutritionally poor.¹⁰

Two of the reasons most frequently declaimed to explain why mothers chose to bottle-feed were their carelessness or ignorance of the 'correct' thing to do, or that their employment meant they were absent from their homes for long periods. The first has begun to be represented as a misunderstanding of the strategies used to cope with the consequences of poverty, and although the second was attractive, contemporaries found it difficult to demonstrate any convincing statistical link between areas of high infant mortality and widespread female employment. Indeed, the additions to a family's income may have increased the chances of survival. Some inquiries also indicated that the rate of breast-feeding was in fact quite high, and that if it had been abandoned it was often due to the failure of the milk, itself the result of ill-health, frequent pregnancies, and inadequate food.¹¹

8 H. M. Richards, 'The factors which determine the local incidence of fatal infantile diarrhoea', *Journal of Hygiene*, III (1903), pp. 325-346.

9 G. F. McCleary, 'The infants' milk depot: its history and function', *Journal of Hygiene*, IV (1904), pp. 329-367.

10 C. Dyhouse, 'Working-class mothers and infant mortality in England 1895-1914', *Journal of Social History*, XII (1978), pp. 248-267; McCleary, 'Infants' milk depots', pp. 342-343.

11 McCleary, 'Infants' milk depots', p. 341; M. L. Davies, *Maternity. Letters from working women* (London, 1978; 1st edn 1915); D. Vincent, *Poor citizens. The state and the poor in nineteenth-century Britain* (London, 1991).

A number of organizations were to be formed supplying milk suitable for infants. Such facilities had originated in France during the early 1890s, where a high rate of infant mortality and an unusually low birth rate magnified the menace of its neighbour to the east.¹² They were of two types. The first, the *Consultations de Nourrissons*, were often attached to maternity hospitals and accepted only the infants born there, although others were open to all. Breast-feeding was encouraged whenever possible, but if this proved difficult, then sterilized milk was provided. The mothers were required to make their children available for a medical examination each week until the age of two years. The second type were the *Gouttes de Lait*. These were dispensaries which provided medical supervision and sterilized or other modified milk. They too promoted breast-feeding, but many of their clients were unable to do this. By 1903 there were twenty-five such institutions in Paris and at least sixty in the provinces, most of them under the control of a philanthropic society. The first had been established at Fécamp during 1894 by Dr Leon Dufour. It was this which became the model for the depot established in St Helens. Other British local authorities and voluntary groups were to draw inspiration from similar work on the Continent. Thus the provision of free dinners to nursing mothers in Birmingham, and the several 'Mothers and Babies' Welcomes', where advice on infant feeding was available, were also copied from France, and the 'School for Mothers' established in St Pancras from Belgium.

I

St Helens is situated some 15 miles to the east of Liverpool. Its nineteenth-century prosperity was built upon the development of coal-mining, chemical manufacture, and glass-making. The rate of population growth averaged 25% per decade between 1861 and 1891; thereafter it slowed to about 18% before 1914. This was a product of migration and a high birth rate; the latter was not to fall below 40 per 1,000 for the first time before 1887.

12 McCleary, 'Infants' milk depots', pp. 329-333; R. Tomlinson, M.-M. Huss, and P. E. Ogden, 'France in peril', *History Today*, XXXV (1985), pp. 24-31.

In 1880 the I.M.R. reached 169 per 1,000. This was modest when compared to that of neighbouring towns (198 per 1,000 in Salford, 191 per 1,000 in Liverpool and 179 per 1,000 in Manchester), but it was a figure beaten only once during the 1870s. During the 1880s, the I.M.R. was to pass 169 per 1,000 on three other occasions, and during the 1890s seven times. An average I.M.R. for the years 1891–1898 of 176 per 1,000 compared unfavourably with that of the 33 ‘great towns’ (170 per 1,000) and the 67 ‘large towns’ (156 per 1,000). For the same eight years, the average death rate from diarrhoea for the third quarter was 4.0 per 1,000; the average for the ‘great towns’ was 2.8 per 1,000, and for the ‘large towns’ 2.3 per 1,000. These infant deaths were awarded little systematic attention by the council’s health committee until the 1890s, although diarrhoea was recognized as being a major problem at incorporation in 1868. It had the distinction of being the first disease to be discussed by councillors, in December 1870, following the arrival of a request from the Medical Department of the Privy Council for a report upon the last quarter’s high mortality. The chief inspector of nuisances plotted the location of those deaths of which he was aware on to a plan, but finding himself unable to discern any pattern in their distribution declared himself beaten. His note to Simon’s department concluded with the regret that the sanitary authority ‘was unable to detect any local cause for the increased mortality complained of’.¹³

Municipal public health work was encouraged by the appearance of smallpox over the winter of 1871–1872, and during the epidemic a district nurse was employed to carry out home visiting.¹⁴ As the epidemic waned it was argued that she might be retained to work as a home visitor in the poorer districts.¹⁵ However, the council’s failure to make a speedy decision saw the nurse successfully seek private employment. Later, it was proposed that general practitioners should be encouraged to add a remark to any infant’s death certificate they issued if they suspected that parental negligence had been

13 St Helens Local History and Archives Library [hereafter S.H.L.], ST/17 1.6 (minutes of the council’s health committee) [hereafter Minutes], 22 Dec. 1870.

14 S.H.L., Minutes, 21 Dec. 1871.

15 *St Helens Newspaper and Advertiser*, 6 July, 20 July 1872.

a contributory factor.¹⁶ The borough's first medical officer of health, Robert McNicholl, appointed in 1873, initially explained diarrhoea mortality as the fault of negligent working mothers and careless baby-minders, or as a consequence of illegitimacy. Other targets included those who exposed poorly-clothed and sickening infants to inclement weather.¹⁷ McNicholl was later to blame 'the effluvia from animal and vegetable matters, in a state of decomposition', which had its most serious effect upon those whose constitutions were already weakened by the effects of bad drainage, foul sewers, and insanitary domestic conditions.¹⁸ During the 1870s and 1880s McNicholl's major objectives were to encourage his council to take action against industrial pollution and to replace the privy middens with some other form of sewage removal system. Infant mortality was marginal to such matters. Neither the request for a report from the Local Government Board in 1880, nor the town's inclusion in Dr Edward Ballard's investigation into such mortality, were to encourage reform.¹⁹ However, the proximity and seriousness of two other epidemics—of typhoid over the winter of 1888–1889 and scarlet fever in the summer of 1890—helped to instigate an important re-evaluation of municipal public health work led by John Forster, the chairman of the health committee.²⁰ These outbreaks helped to sweep away opposition to sewerage, hospital, and other engineering projects which had been resisted as too expensive or unnecessary for a decade or more. They also led to the appointment of an assistant medical officer, John Robertson.

Robertson formally succeeded McNicholl in 1894. He was one of the new type of medical officers whom Dorothy Watkins found being employed in London from this time.²¹ Whereas McNicholl's academic qualifications were limited, his new

16 *St Helens Standard*, 16 Sept. 1876.

17 *St Helens Standard*, 2 Nov. 1872.

18 S.H.L., ST/17 1.6 (annual report of the medical officer of health) [hereafter M.O.H.] 1874, p. 5; M.O.H. 1875, p. 11.

19 *St Helens Newspaper and Advertiser*, 11 Dec. 1880, 16 Apr. 1881.

20 *St Helens Newspaper and Advertiser*, 6 Dec. 1890; R. Hawes, 'The paradise of every nuisance. The development of municipal public health services in St Helens, 1868–1914', (unpub. Ph.D. thesis, University of Liverpool, 1992), pp. 125–127, 234–235.

21 Watkins, thesis, chap. 2.

assistant had obtained the degrees of M.B. and M.D. Later he had experience of experimental public health work in the laboratories at the University of Edinburgh, which led to the award of the B.Sc. (Public Health) in 1889. St Helens was his first public appointment.²² Other positions were forbidden to him with the exception of public analyst. He and Forster were to help transform the health department. The apparatus he now demanded formed the nucleus of a municipal chemical and bacteriological laboratory. He insisted upon the employment of suitably qualified persons as nuisance inspectors, and advanced training was encouraged by adding increments to their pay scales and by promoting staff already employed by the council. Their attendance at medical congresses and other meetings was welcomed. Routine clerical duties became the duty of junior clerks. Robertson himself was closely associated with the North-West Branch of the S.M.O.H., becoming its president in 1897. Robertson was to devote a separate section of his annual report to infant mortality. In the first published under his control, that for 1891, his remarks were strongly influenced by Ballard's *Report on Diarrhoea*, published at the end of 1888.²³ He repeated verbatim the conclusions that soil type and the soil temperature at a depth of four feet determined the incidence of the disease, and he reiterated Ballard's thesis that micro-organisms, as yet unidentified, were spread by 'emanations' to be deposited on to milk and other foodstuffs.²⁴ The following year he felt able to conclude his remarks as follows:

The special or exciting causes of diarrhoea are errors of dieting. The increasing fashion of the hand feeding of infants is much to be deprecated. It is well known that but few deaths occur from diarrhoea amongst infants who are breast-fed.²⁵

At the same time he dismissed two influences identified by McNicholl. He showed how the incidence of illegitimacy was

22 Sir John Robertson's obituary is found in *The Lancet*, CCXXXI, vol. 2, (1936), pp. 1548-1549 and the *British Medical Journal*, vol. 2 (1936), pp. 1337-1338.

23 Dwork, *War is good for babies*, pp. 36-38.

24 S.H.L., M.O.H. 1891, p. 12.

25 S.H.L., M.O.H. 1892, p. 10.

very small in St Helens and argued that its role should be discounted. He also described how the opportunity for female employment outside the home was limited; because of this, recourse to the feeding bottle was seen as the result of neglect rather than necessity.²⁶ He proposed that the council should begin to employ lady sanitary inspectors, similar to those recently engaged in Edinburgh and Manchester, whose responsibilities would include giving advice on infant and child care.²⁷

By 1895 Robertson was certain of his position. Milk was pinpointed as being not only the 'best possible breeding ground for most micro-organisms', it was also the 'main vehicle for the conveyance of the exciting cause of diarrhoea'.²⁸ His conviction was based upon an investigation into every locally notified case between 1893 and 1895. The results reinforced his belief that the danger lay with artificial feeding, particularly when done with the long-tubed bottle which was notoriously difficult to clean. From this came an attempt to discourage all bottle-feeding. The Registrar was asked to distribute a handbill which urged breast-feeding alone for not less than the first six months. If this was not possible the leaflet suggested the use of fresh cows' milk to which water and white sugar were to be added in proportions determined by the infant's age, using a 'boat-shaped bottle'.²⁹ By the time Robertson moved to Sheffield to become its medical officer in 1897, the key components were in place. Two influences which had been discussed nationally—illegitimacy and working mothers—had been dismissed as of little importance in St Helens; there the cause of infant mortality had become identified with the neglect of the proper methods of feeding.

II

The new medical officer, Frank Drew Harris, shared Robertson's academic background. Aged thirty, he had obtained the joint M.R.C.S. and L.R.C.P. in London and had spent time working in the public health laboratory at St Mary's

26 S.H.L., M.O.H. 1892, p. 10; 1894, pp. 15-16.

27 *St Helens Newspaper and Advertiser*, 30 Sept. 1893.

28 S.H.L., M.O.H. 1895, p. 39.

29 S.H.L., M.O.H. 1896, pp. 60-64.

Hospital. In 1893 he had acted as assistant medical adviser to the Royal Commission on Vaccination. He had been awarded the M.B. and D.P.H., and became a demonstrator in the public health laboratory at King's College.

He arrived in St Helens at a time when the quality of the local milk supply was under suspicion. A recent prosecution of a farmer under the Sale of Food and Drugs Act had failed because the defence had been able to show that the milk's low fat content was more likely to have been caused by the cow's poor diet than to prove the addition of water. The affair, and what it implied about the quality of the supply, was widely discussed in the press.³⁰ Further disquiet was caused by the growing association between milk and tuberculosis. The medical officer's annual report for 1898 had shown that mortality from all tubercular causes accounted for one tenth of the year's total, and it was proposed that the council should begin a programme of tuberculin testing.³¹ In these circumstances the medical officer suggested that he would write a report upon the whole matter of infant mortality.³² The report was primarily concerned with diarrhoea deaths registered during the summer of 1898 (see Table 1).³³ Drew Harris interpreted the relatively small number of babies dying under three months as illustrating the advantages of breast-feeding and the sharp rise which took place in succeeding months as marking the transition to artificial foods. Current municipal sanitary work was damned as inadequate, particularly the failure to replace the midden privies. In addition the directions distributed by the Registrar were condemned as being of little value for they were not being read and he proposed that the Registrar should be asked to provide details of all new parents to allow an early visit by the female sanitary inspector. In March 1899 Drew Harris brought together his thinking about milk, tuberculosis, and infant diarrhoea in a new report upon the mortality of those aged under five years.³⁴ Just as Robertson had drawn upon Ballard's investigations, Drew Harris

30 *St Helens Newspaper and Advertiser*, 7 Aug. 1897, 11 Dec. 1897.

31 *St Helens Newspaper and Advertiser*, 6 Aug. 1898.

32 *St Helens Newspaper and Advertiser*, 13 Aug. 1898, 27 Aug. 1898.

33 *St Helens Newspaper and Advertiser*, 1 Oct. 1898.

34 *St Helens Newspaper and Advertiser*, 11 Mar. 1899.

TABLE 1 *Figures presented to the health committee, St Helens, September 1898: deaths from diarrhoea, May to September, 1889*

<i>Ages</i>	<i>Sanitary conditions</i>			<i>Total deaths at each age</i>
	<i>Water closets</i>	<i>Privy middens</i>	<i>Tub and pail</i>	
0 to 3 months	0	7	5	12
3 to 6 months	2	17	9	28
6 to 12 months	2	18	16	36
1 to 2 years	0	13	10	23
2 to 5 years	0	1	6	7
5 and upwards	0	3	4	7
Totals	4	59	50	113

<i>Ages</i>	<i>Method of feeding</i>			<i>Total deaths at each age</i>
	<i>Bottle fed</i>	<i>Breast fed</i>	<i>Other foods</i>	
0 to 3 months	7	5	0	12
3 to 6 months	25	3	0	28
6 to 12 months	24	12	0	36
1 to 2 years	5	6	12	23
2 to 5 years	0	0	7	7
5 and upwards	—	—	7	7
Totals	61	26	26	113

Source: St Helens Newspaper, 1 Oct. 1898

employed the arguments used by John Tatham, the Superintendent of Statistics at the Registrar-General's Office. His evidence to the Second Royal Commission on Tuberculosis had noted the similarity in the pattern of mortality from diarrhoea and tabes mesenterica, and he had shown the increase in the number of deaths from both diseases which took place in infants aged between three and six months, which he associated with the beginning of bottle-feeding.³⁵ Drew Harris showed that between 1892 and 1897, most infant deaths in St

35 Dwork, *War is good for babies*, pp. 68–69.

Helens had been registered as the result of bronchitis, prematurity, debility, marasmus, measles, whooping cough, scarlet fever, tuberculosis, and diarrhoea. Following Tatham's method, he passed over the first four causes as being only 'remotely preventable'. The next three had been the target of municipal work for a number of years and little new could be attempted. This left tuberculosis and diarrhoea where innovation was possible, mainly through the control of the milk supply.

Courses of action were proposed and rejected. Tighter regulation of the borough's cow sheds would be of limited effect because milk was coming into St Helens from areas where such inspection was known to be poor. Secondly, farmers might be encouraged to participate in the 'Sunderland scheme', where certificates were awarded to those whose beasts' milk met a minimum standard and had passed an annual tuberculin test. This, however, depended upon the uncertain co-operation of too many individuals. The most encouraging remarks were given to his third alternative—the sterilization of the milk—for this could be done under council supervision. Not only would it be a blow against tuberculosis but many other childhood diseases. For best advantage, he argued, the infants would require not sterilized milk but humanized milk of the kind which was being distributed in France, where water, cream, sugar, and salt were added. Here Drew Harris was referring to a leader recently published in the *Journal of State Medicine* which had described Dr Dufour's work in Normandy. The apparent success of his scheme had encouraged him to write to France requesting information. It was agreed that the medical officer and three senior members of the health committee should make further investigations, and a group travelled to London and France in order to investigate the whole matter.³⁶

In London the party viewed a range of milk sterilizing machinery and visited the Dairy Supply Company, a firm already making sterilized and humanized milk for sale in the capital.³⁷ The delegates were assured that a growing market had developed despite the additional payment necessary to have the bottles sealed. From there they travelled to Fécamp.

36 *St Helens Newspaper and Advertiser*, 25 Mar. 1899, 13 Apr. 1899.

37 *St Helens Newspaper and Advertiser*, 15 Apr. 1899.

Dufour described how the prepared milk was stored in a set of nine bottles in wire baskets. Each set was allocated to a specific child and contained enough milk for one day's feeds, ending the need for a separate bottle. The mothers were provided with a short rubber teat which had to be brought back regularly for inspection and all babies were required to be weighed and measured each week. It was Dufour's opinion that no difficulties had been found in getting even the poorest class to use the milk, nor had they protested at the weighing. The delegates then moved on to Le Havre, a town with a population of 140,000, nearly ten times that of Fécamp, in which a similar charity had begun to work five months before. All was described as successful. Although there were just sixty-five infants receiving milk, it was predicted that this number would rise to over 400 in the next few months. As at Fécamp a fee was asked, but provision had been made for tickets to be issued which allowed deserving parents to collect milk at no charge.

The depot which was eventually established in St Helens was strongly influenced by the work seen in Normandy, with the exception that it was to be under municipal control and was expected to make a small profit.³⁸ A lady superintendent was employed with a female assistant; both were required to live at the depot. The method of collection used at Fécamp was followed using the same mixtures and the same number of feeds, six for the day and three for the night. A charge of 2*d.* per day was agreed for those residents who collected their milk, and 3*d.* for those who wished to have the milk delivered or for families living outside the borough. Two rubber teats were provided and the babies were to be brought for weighing each Wednesday. The co-operation of the Ladies' Mission Society (a voluntary body responsible for co-ordinating the work of the two district nurses) was sought in the identification of deserving cases and in the distribution of free tickets. The possibility of opposition from milk sellers was discounted because all supplies were to be purchased from local firms. As was argued, there was no humanized milk being prepared in St Helens, and any shopkeepers who added water, salt, and sugar to their milk as the council proposed would attract the attention of the police!

38 *St Helens Newspaper and Advertiser*, 29 Apr., 2 May, 3 June 1899.

Finally, the capital cost, at £250, seemed small. However, these decisions invited comment on the council's proper role in the community. The idea that they should be entering any commercial operation was regarded with suspicion at a time when 'municipal trading' was under scrutiny. To Councillor Dr Bates, however,

If, as was asserted, children did not get milk at all, it was the duty of the Council, as governors of the town and as leaders of the community, to endeavour to show the people the proper way their children ought to be fed

and to Alderman David Gamble,

The Council had spent tens of thousands of pounds on matters from which they did not hope to have one-third of the advantage in saving of human life as they would get from this. One of [my] daughters got this humanized milk from London, but it cost a good deal to bring from London, and the population generally could not undertake such an expense. . . . This work had to be done. . . .

The depot was opened on 8 August 1899. By the end of the month over eighty children were being fed daily and a second assistant had been employed. By the end of the year 120 children were receiving the milk and a second sterilizer and a bottle washing machine were purchased, along with a carrier tricycle to speed home deliveries. Drew Harris described his work in an article for the *British Medical Journal*, and he was to speak on the success of the milk experiment to the annual congress of the British Medical Association at Ipswich later in the month.³⁹

It was all to be a false dawn for the enthusiasm soon disappeared. There had always been problems in getting mothers to bring their children to be weighed and inspected, but this had caused no real concern. What was alarming was the falling number attending the depot (see Table 2). During 1900 over 300 infants had registered but by 1903 the figure had fallen to less than 200. Drew Harris found himself unable to explain this decline for it appeared to be the opposite of that experienced elsewhere. Liverpool's two depots were struggling to meet demand and people from Wigan, Prescott, and Widnes

39 F. D. Harris, 'The supply of sterilised humanised milk for the use of infants in St. Helens', *British Medical Journal*, vol. 2 (1900), pp. 427-431.

TABLE 2 *Number of children registered with the infant milk depot, St Helens, 1899-1913*

1899	284	1904	160	1909	77
1900	332	1905	170	1910	61
1901	282	1906	117	1911	68
1902	200	1907	119	1912	80
1903	183	1908	124	1913	65

Source: Annual reports of the medical officer of health

were not only prepared to journey to St Helens, but to pay the extra penny for the milk.⁴⁰ In order to attract more clients the milk began to be prepared in various strengths and the possibility of building sub-depots in the outlying districts was discussed.⁴¹ The trades council was asked to publicize the depot. However, the number attending continued to fall.⁴²

III

John Buchan replaced Drew Harris as medical officer in 1904. He too was well qualified. Aged twenty-nine, he held the degrees of M.B. and B.Ch. as well as the D.P.H. He had served as the medical superintendent to the county infectious diseases hospital, Motherwell, and had assisted the county medical officer for Lanarkshire. Buchan began by trying to revitalize the depot. He prepared a baby calendar advising parents of its advantages and defended the milk against those councillors who claimed that the sterilization process destroyed its goodness and thereby encouraged scurvy. He solicited testimonials from Dr Hope, the medical officer of Liverpool, and showed how the death rate of depot babies was significantly lower than other hand-fed infants. He also proposed that shops should be free to sell the milk over the counter.⁴³ However, his real interest lay elsewhere, and first showed itself in July 1905, when he

40 S.H.L., M.O.H. 1901, p. 60.

41 S.H.L., M.O.H. 1902, p. 60.

42 S.H.L., M.O.H. 1903, p. 54; 1904, p. 55; 1905, p. 55.

43 *St Helens Newspaper and Advertiser*, 28 Dec. 1906, 11 Jan., 15 Oct. 1907; S.H.L., M.O.H. 1907, p. 93.

proposed that beds at a municipal fever hospital should be made available for infants with diarrhoea during the dangerous summer months to allow their treatment to be medically supervised and to instruct mothers in infant care.⁴⁴ However, the clearest outline he gave of his thinking came in a public lecture at Christmas 1907.⁴⁵ He began by reviewing the recent parliamentary investigations into physical training and physical deterioration, and noted the role of the war in South Africa in forcing attention on to a neglected area. His standpoint on the question of racial decline was clear:

I, personally, do not doubt that degeneracy can be, and is transmitted, from one generation to another. It is unreasonable to suppose that the degenerate, starved or drunken mother can have a healthy fat baby, but evidence is not wanting that the handicap on the infant at birth is not as great as we might think it likely to be.

Buchan stressed the influence of domestic overcrowding and cleanliness upon early development and restated the importance of proper feeding. To him it was 'a physiological crime for a mother to willfully deprive her baby of breast milk, and we ought to consider it a social sin'. The way ahead, he argued, was to improve conditions in the home and further to encourage breast-feeding. Such advice would be most relevant as soon after confinement as possible. He was laying the ground for an important expansion of home visiting. Beginning in 1906, an attempt had been made to keep every hand-fed infant under medical supervision.⁴⁶ What this revealed was that breast-feeding was not as uncommon as had been thought. The majority of infants were breast-fed at least until between the twelfth and the fifteenth month; some children were found receiving breast milk at two years of age (see Table 3).

By 1910 the central place it was thought the milk depot would hold had been surrendered to the work of female health visitors.⁴⁷ The depot's staff were freed for domestic visiting. These ladies, all of whom had been trained in infant nursing

44 *St Helens Newspaper and Advertiser*, 4 Aug. 1905.

45 *St Helens Newspaper and Advertiser*, 27 Dec. 1907.

46 S.H.L., M.O.H. 1906, p. 93.

47 J. J. Buchan, 'Reduction of the infantile mortality from the diarrhoeal group of diseases: administrative measures', *Journal of the Royal Institute of Public Health*, XVIII (1910), pp. 72-82.

TABLE 3 *Month of weaning, St Helens, 1907*

Age	9	9-12	12-15	15-18	18-24	24+
Number of infants	45	112	301	102	93	27

Source: Medical officer of health, annual report, 1907, p. 92

and who had to show an understanding of midwifery and sanitation, were instructed to identify any potential risks to which each baby was exposed, and to offer 'friendly advice' on the manner in which problems might be overcome. Buchan was to argue that such visits explained a further increase in breast-feeding. In an article to the *Journal of the Royal Institute of Public Health* he claimed that the number of infants notified to the health department receiving breast milk had grown from 80% of the total in 1901 to over 95% in 1908 (see Table 4). He interpreted the depot's falling roll as reflecting its success because it had helped to reduce the number of potential customers. Again, by teaching mothers how to prepare the milk at home it was no longer important that they attend. Buchan could also describe more prosaic problems for the depot's under-use. The cost of 2d. per day had been seen by the poorest families as too much to spend on a baby of a few weeks or months, but the milk could not be offered free to such people for fear it might encourage others to halt breast-feeding. Carrying a wire basket containing nine bottles twice a day to and from the town centre had proved onerous, particularly if an infant was being carried as well. Because the council required payment for breakages, those responsible dare not return. Finally, the range of services offered had been simply too small to retain people's interest.

The beginning of the school medical inspection of schoolchildren allowed Buchan to complete a further inquiry between 1907 and 1910, when mothers were asked to give details of all their children, living and dead.⁴⁸ In all, 817 families were investigated, producing details of 5,625 infants. The results indicated that infant mortality was far more complex than had been considered so far because important

48 J. J. Buchan, 'Some sociological aspects of infant mortality', *Public Health*, XXIV (1911), pp. 221-225.

TABLE 4 *Methods of feeding infants in St Helens, 1904–1912*

	1904	1905	1906	1907	1908	1909	1910	1911	1912
Infants visited	2009	2263	2428	2602	2885	2838	2837	2901	2809
Breast fed (%)	89.1	87.6	88.6	91.9	95.3	97.8	98.0	96.1	96.2
Breast and hand fed (%)	–	3.4	4.1	3.2	0.6	0.1	0.2	2.5	0.7
Hand fed (%)	–	9.0	7.3	4.8	4.0	2.1	1.8	1.2	3.0

Source: Annual reports of the medical officer of health

differences were revealed between groupings determined by the father's occupation. The I.M.R. for the children of 'General Labourers', for example, was 172 per 1,000, while that for 'Shopkeepers' was 98 per 1,000, as Table 5 shows.⁴⁹ The risk of death was also shown to vary according to the child's sex and position in the family. High mortality also appeared to cluster in certain households.

In May 1906 Buchan attended the first National Conference on Infantile Mortality in London.⁵⁰ From this sprang three

TABLE 5 *Infant Mortality Rates by father's occupation*

	Sample Size	I.M.R.
General labourers	947	172
Chemical labourers	465	159
Coal-miners	1,422	153
Glass-workers	654	144
Skilled tradesmen	438	125
Shopkeepers	215	98
Miscellaneous	691	104
Total	4,832	144

Source: S.H.L., M.O.H. 1912, p. 87

49 For a similar exercise in Croydon see Richards, 'Fatal infantile diarrhoea', pp. 338–340.

50 *St Helens Newspaper and Advertiser*, 29 June 1906.

further reforms. The first concerned council payments under the Midwives' Act. This had come into force in St Helens in April 1902, when the council became the supervising authority. In the first year of its operation, nineteen of the town's forty-eight registered midwives had received certificates, the remainder being allowed to continue their practice because they had been doing so for a year before the passage of the Act. Buchan estimated that midwives attended some 90% of the town's births, and that in between 40% and 50% of these cases they were alone.⁵¹ Drew Harris had arranged a training programme for them by delivering a series of fifteen lectures.⁵² Although he considered them a success, he noted that attendance had begun to thin by the end. This apart, little else had been attempted. Buchan therefore began another inquiry. His conclusions were generally favourable, remarking that since regulation

The midwives are more careful in their work, more particular about their own person, and about their appliances, more alive to untoward symptoms in their patients, and more ready to call out medical aid in difficult cases.⁵³

But under the terms of the Act a doctor called to a difficult birth was to be unpaid, and this had resulted in some reluctance to attend confinements and contributed to at least one death in the borough. The council therefore agreed to pay a fee once a written submission had been made to the medical officer showing that the doctor had attempted, and failed, to obtain the money from the family involved.⁵⁴

The second reform involved payment by the council to improve the notification of births. For home visiting to be most effective it was essential that the news of a confinement be received as quickly as possible. In Huddersfield this had been achieved by a private Act which required all births to be reported to the medical officer within thirty-six hours. Buchan had unsuccessfully urged the health committee to follow this

51 S.H.L., M.O.H. 1904, pp. 70-71.

52 S.H.L., M.O.H. 1905, pp. 63-64.

53 S.H.L., M.O.H. 1907, p. 81.

54 S.H.L., M.O.H. 1907, pp. 81-88.

lead.⁵⁵ Before 1907 notification came from the Registrar or from one of the home visitors. Both were characterized by delays of several weeks, in the former case because registration was regarded as the mother's responsibility. However, during 1907 new regulations were adopted by the Central Midwives Board which recommended that a maximum of forty-eight hours be allowed before registration should be completed by the midwife herself.⁵⁶ A weekly return was arranged of all the births in the borough, which significantly reduced the time between the confinement and the arrival of the first home visitors. Further improvements came when the Notifications of Births Act became operative in January 1908, and once the council agreed to pay 6*d.* to those who followed the correct procedures. By 1912 virtually all births were being notified within two days and most babies had been visited in their first two weeks of life, as Table 6 shows.⁵⁷

TABLE 6 *Age of babies when first visited in St Helens, 1907-1912*

	Weeks				Months				
	<i>Under 1</i>	<i>1-2</i>	<i>2-3</i>	<i>3-4</i>	<i>1-2</i>	<i>2-3</i>	<i>3-4</i>	<i>4-5</i>	<i>5-6</i>
1907	10	31	149	959	1415	131	10	3	1
1908	462	986	671	373	207	97	53	36	-
1909	1294	839	480	203	19	3	-	-	-
1910	1638	1006	183	4	6	-	-	-	-
1911	1432	1098	166	9	6	2	1	-	-
1912	1264	1315	226	2	-	1	1	-	-

Source: Annual report of the medical officer of health, 1912, p. 88

Buchan's third initiative after the London conference concerned infant insurance, and his interest may also have been prompted by the calling of the Select Committee on Infant Life Protection early in 1908. Robertson had first approached the matter in 1894, following a series of sensational murders in different parts of the country, the ensuing parliamentary investigation, and the introduction of an Infant Insurance Bill.

55 *St Helens Newspaper and Advertiser*, 4 May 1906.

56 S.H.L., M.O.H. 1907, p. 89.

57 S.H.L., M.O.H. 1912, p. 87.

However, he admitted that he knew little of the business in St Helens, although he was prepared to speculate that it was very extensive.⁵⁸ Buchan's investigations showed that Robertson's opinion was valid: from a total of 1,930 infant deaths in 1907, just 345 had not been insured. These figures, received from the mothers, were regarded as an underestimation of the total. While Buchan could show that the sums of money received were small—between 15s. and £3, sums too small to encourage infanticide—he felt that the whole area was disturbing.⁵⁹ It is not known how Buchan looked into the effects of infant insurance. A few sensational stories were reported to the health committee, such as that of the midwife who had falsely completed a death certificate for a stillborn child by stating that it had lived for four minutes to allow the parents to claim from a burial club,⁶⁰ but this was unusual. There was certainly a dramatic fall in the amount of infant insurance in St Helens. While 81% of babies were thought to have carried insurance in 1907, this had fallen to 45% in 1912 (see Table 7). The reason for this decline is unclear. The local newspapers appear silent on the whole matter, and only the scantiest information is given in Buchan's annual reports. Whether the insurance companies were moving away from the business following adverse exposure, or if the mothers, from whom the information was still presumably being extracted, were now preferring to keep quiet, is unknown.

TABLE 7 *Insurance of infants under 1 year, St Helens, 1907–1912*

	1907	1908	1909	1910	1911	1912
Number of infants	1903	2838	2838	2827	2901	2809
Number insured	1556	2048	1928	1846	1467	1280
Percentage insured	80.6	72.1	67.9	56.0	50.5	45.4

Source: Annual reports of the medical officer of health

These municipal initiatives were put under the most severe test during the unusually hot summer of 1911. They were to

58 S.H.L., M.O.H. 1894, pp. 15–16.

59 S.H.L., M.O.H. 1907, p. 93.

60 S.H.L., Minutes, 15 Jan. 1908.

prove inadequate and the death rate for infant diarrhoea reached 2.3 per 1,000, a figure seen only once before, in 1878. This coincided with the appointment of Joseph Cates as medical officer. His interest in child welfare was already well established. He had written on the value of school clinics in *Public Health* during 1911, and was to deliver the Chadwick Trust lecture in 1914 on the subject 'The care of children under school age'. In 1919 Cates was to write what became a standard work on children's health.⁶¹ He directed attention back to the same filthy streets and backyards which McNicholl had highlighted thirty years before, noting the amount of dirt trampled or blown into houses. Cates also stressed the influence of the domestic fly.⁶² Medical officers had been speculating upon its role in transmitting disease for a dozen years or so.⁶³ Cates began an extensive campaign against the insect and its breeding grounds. Shopkeepers were warned of the danger of allowing flies to walk over foodstuffs⁶⁴ and a competition was launched encouraging schoolchildren to kill as many insects as they could.⁶⁵ The council was harangued to order manure swept from the streets. Cates arranged that photographs be taken and bound into his annual report. There alongside the showpieces of municipal activity were scenes of overflowing privies and unpaved streets. Captions were added to some of these pictures, one of which was 'Baby's airing space', showing a perambulator, alone, in a filthy backyard.

Cates' other important contributions before the Great War concerned the expansion of facilities available to pregnant women and new mothers.⁶⁶ During 1914 the health committee was persuaded to establish a maternity centre at the town hall to co-ordinate all activities concerned with the welfare of mothers and infants. Its staff provided ante-natal classes and instruction in baby care. The midwives were instructed to notify the health department when they were first engaged to attend a

61 *The Medical Officer*, XII (1914), p. 22; J. Cates, *The welfare of the school child* (London, 1919).

62 S.H.L., M.O.H. 1913, pp. 61-62.

63 Dwork, *War is good for babies*, pp. 45-47.

64 S.H.L., M.O.H. 1914, pp. 61-62.

65 S.H.L., M.O.H. 1914, pp. 41-42.

66 S.H.L., M.O.H. 1914, pp. 52-54; *The Medical Officer*, XI (1914), p. 298.

woman for her confinement in order to gather the earliest information of a pregnancy, and a home visit followed. If any abnormality or illness was suspected, arrangements were made for her to attend the maternity centre. Lying-in outfits for mother and child were made available for loan and nutritious foods were supplied. Any structural or other defects in the homes were reported so that remedial attention might be given. Although in 1907 Buchan had asked the management committee of the cottage hospital to establish a maternity ward,⁶⁷ nothing was achieved until 1915, when one of the smaller pavilions at the municipal isolation hospital was set aside and a consulting surgeon employed. Cates also added to post-natal care, for if any serious medical complication was discovered the mother and infant were encouraged to enter the hospital for observation.

Cates ended the supply of humanized milk and replaced it with dried milk. The switch was to revitalize the depot. In 1913 less than a dozen infants had received the humanized milk, but by 1915 over seventy babies were being fed upon the powder. The pasteurization process, breakages, and the salary of the attendants, all of which had helped to push the depot into deficit had, by 1915, been ended and the first profit had been made.⁶⁸ By 1918 the original maternity centre at the town hall had been joined by three others in different parts of the town, and the wards at the unused smallpox hospital near Haydock had been converted into a maternity unit.

IV

Why did the infant welfare work described above take the form it did? The overriding reason was because it was all municipal work. In contrast to Manchester or Liverpool there is no evidence of voluntary home visiting in St Helens nor any relevant medical charity before the 1890s. Therefore we need to focus our attention upon the council. Between 1845 and 1888, public health matters were awarded importance only at times of

67 *St Helens Newspaper and Advertiser*, 10 May 1907.

68 S.H.L., M.O.H. 1918, p. 16.

epidemic disease. This was brought to an end by the outbreaks of 1888–1890 and the election of John Forster to the chairmanship of the health committee. He was to retain this position until 1902 and his membership of the committee until 1912. From 1890, then, the borough's medical officers were working in circumstances which favoured innovation, and the gentlemen appointed to this position were relatively young, with strong academic backgrounds and experience of research. They had regular contact with some of the leading medical figures in the North-West through their membership of the S.M.O.H. The most distinguished of them proved to be John Robertson. He was eventually to become the Professor of Public Health at Sheffield's University College and later at the University of Birmingham. Beginning with him, the health department was reshaped and the medical officers increased their influence over policy making. This is indicated by the shifts of emphasis which took place when the medical officers changed. The milk depot was important to Drew Harris, but it held no special place to Buchan, to whom home visiting was paramount. Cates concurred but took a fresh look at environmental influences and emphasized the importance of maternal care.

How was this possible? Unlike McNicholl, who had battled for costly and controversial engineering projects, the reforms made after 1890 were mainly administrative and cheap. They invited no hostility from those anxious to keep down the rates nor incited protest from residents fearing unpleasant repercussions. Again, infant welfare was but one aspect of the health department's work. It evolved in the company of changes specific to a number of diseases. The time councillors spent in formal meetings had increased dramatically. In 1869 the old sanitary and nuisances removal committee had met eleven times; in 1900 the health committee assembled over forty times, and councillors had similar heavy obligations to two or more other committees. The volume of work had also become more specialized, again enhancing the medical officer's position. McNicholl's function had been to report upon topics determined by the councillors; his successors could highlight problems of their own choosing, show their extent, and suggest remedies. The medical officer was no longer regarded by councillors as an expensive imposition required of them by central government, but as an essential part of local

administration. Two examples might be provided, the first concerning remuneration. In 1894 Robertson could be described as 'the most important officer in the corporation', and it was argued that if his salary was not increased substantially, he might begin to look elsewhere. To Alderman Cook

If you want an efficient officer you must pay him according to his ability and talents and technical knowledge . . . We must recognize a man's ability.⁶⁹

The second concerns his role. In 1908 Forster could say of John Buchan

We know our medical officer is always keeping us up to the mark as to what ought to be done and what can be done in order to improve the position of our death-rate. It is the duty of the medical officer. We are proud of him, because he is always prodding us about this thing and the other thing, and if we want a rest on some of these things the medical officer would not allow us, and it is his place to always keep us up to the mark. . . .⁷⁰

Their methods were not without their weaknesses. A common procedure was to use tables to demonstrate the character and extent of a problem. However, in the case of artificial feeding this proved inadequate. Many potential influences were of little or no significance in St Helens. The borough had no back-to-back houses by the 1890s, a low rate of illegitimacy, and little opportunity for female employment. The medical officers were therefore obliged to concentrate on poor sanitation and artificial feeding, but the technique used to test these alternatives was defective. The simple tabulation of diarrhoea death rates proved inadequate to explain a problem influenced by all manner of personal or family habits. The method chosen to present the results was also misleading. Drew Harris could show that some 75% of such deaths were of bottle-fed babies, but the number of all bottle-fed babies which this represented was unknown. It required the home visiting begun by Buchan to reveal that the total may have been quite modest.

69 *St Helens Newspaper and Advertiser*, 9 June 1894.

70 *St Helens Newspaper and Advertiser*, 4 Sept. 1908.

Similarly, the inquiry into breast-feeding was of uncertain value. The high percentage of mothers found to be breast-feeding in St Helens is comparable to the estimate of 80% made by Sir Arthur Newsholme (medical officer of the Local Government Board) in 1910 and to the totals found in neighbouring areas.⁷¹ In 1903, 372 of the 433 infants (86%) surveyed in the Ancoats district of Manchester were receiving breast milk, and 81 of 100 infants in Chorlton-upon-Medlock.⁷² Sadly, neither the ages nor the duration of feeding were recorded. The significance of the large number of infants Buchan found receiving breast milk after the age of twelve months during 1907 is uncertain. The year was not one of obvious distress; there appear to have been no prolonged strikes or lock-outs, and the local branch of the Charity Organization Society was not faced with a large number of claimants for assistance. The results drew no expression of surprise from the medical officer or anybody else. He was not to repeat the exercise.

What was the influence upon activity in St Helens of those factors (alleged physical deterioration, and the role of the S.M.O.H.) which have been seen as important on the national stage? The question of physical deterioration seems to have played relatively little part. The milk depot was opened some eight weeks before the Boer declaration of war in October 1899, and four months before the humiliations of 'Black Week' in December. By the time Maurice's articles had begun to appear in 1903 it was already losing clients. Buchan's appointment in the summer of 1904 coincided with the release of the Inter-Departmental Committee's report, but if it prompted any specific discussion by the council, no record seems to exist. What appears to have been more important was the enthusiasm of the small number of senior councillors who had travelled to London and Normandy and the approach of summer, with all its dangers, when details were being finalized. Alderman David Gamble was also faced with an embarrassing dilemma: could he pay for humanized milk to be brought from London to feed his grandchild and at the same time speak against any municipal supply? While the national leadership of

71 Woods, Patterson and Woodward, 'The causes of rapid infant mortality decline', Pt. 2, pp. 116-119.

72 McCleary, 'Infants' milk depots', p. 344.

the S.M.O.H. sought to expand the responsibilities of its members for their own professional advantages, the impact of this cannot be explored convincingly by examining one local authority in the vanguard of change. The minutes of the meetings of the North-Western branch of the Society published in *Public Health* are too fragmentary to provide any real evidence of an initiating or guiding role which the Society might have performed in St Helens. However, by attending such meetings, the medical officers from St Helens were in close and regular contact with some of the Society's leading figures.

Of course diarrhoea was not the only disease to see municipal activity after 1890. In the case of scarlet fever, measles, diphtheria, and phthisis, however, change centred around the refinement of existing systems of notification, isolation, and disinfection. None of this was seen as relevant to infant welfare in St Helens and the measures adopted stand somewhat apart for they encouraged the council to move in new directions. For the first time (with the exception of smallpox) municipal employees were directed to enter people's homes for medical purposes. The organization of the depot and the beginning of domestic visiting required the largest single increase in the number of trained staff. Women began to be permanently employed, and at one point Buchan had a female assistant. It marked the first occasion when the medical officer began to organize training for specialized groups, as Drew Harris did for the midwives. Finally, it brought the first co-operation between the council and voluntary groups. Through its involvement in infant welfare the council had made its first steps towards the provision of personal health care to the people of St Helens.