PROBLEMS

Infant Mortality, Maternal Mortality, and Public Health in Britain in the 1930s

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The condition of the British working class during the 1930s has been the subject of a formidable and still growing body of historical and sociological literature. Contemporary commentators who were active in or sympathetic to the aims of the British Labour Movement argued that there occurred in Britain as elsewhere in the 1930s a decline in standards of health of the working population. On the basis of statistics on insurance prescriptions issued in 1932-37 by the Ministry of Health, Jurgen Kuczynski concluded that " the state of health of the English workers has deteriorated in recent years, ..." [1] From a different political perspective, Richard Titmuss wrote that the advantage of middle-class over working-class families with respect to the chances of their children surviving to age one " increased after 1921-3 and " in 1943, " for all we know may still be growing ".[2] G. D. H. and Margaret Cole in 1938 dismissed arguments that public health had improved in the 1930.[3] More recently, Sheila Rowbotham has reiterated the pessimistic view. She has asserted that in the interwar years there was an increase in maternal mortality, which was not reversed until the 1940s. " In times of particular crisis ", she noted, " motherhood was especially dangerous... " [4]

All works are published in London unless otherwise noted. Thanks are due to Dr. Fiona Caldicott and the late Dr. Ronald MacKeith for help in the preparation of this paper.

[1] J. KUCZYNSKI, *The Condition of the Workers in Great Britain, Germany, and the Soviet Union, 1932-1938* (1939), p. 49.

[2] R. M. TITMUSS, *Birth, Poverty and Wealth. A Study of Infant Mortality* (1943), p. 5.

[3] G. D. H. and M. I. COLE, *The Condition of Britain* (1937), p. 100.

[4] S. ROWBOTHAM, *Hidden from History* (1973), p. 145.

None of these opinions rests on a systematic investigation of all the demographic evidence concerning public health in the 1930s. Unfortunately, the absence of a census for 1941 precludes the calculation of a reliable estimate of differential mortality by social class in the pre-war decade. But what can be done in the first instance is to examine the pessimists' thesis in terms of the abundant data available on infant and maternal mortality. On this basis, it is argued here that no direct correlation can be made between economic insecurity and the mortality experience of a particularly vulnerable section of the British population. This paper does not contend that standards of adult health were unaffected by chronic unemployment and insecurity. Its main point is rather that such deprivation as undoubtedly existed did not affect adversely the life expectation of the infant and maternal population. Consequently, the infant and maternal survival rates of England and Wales and of Scotland were higher in 1939 than they had ever been before.

Still Britain lagged far behind the Netherlands and New Zealand, to cite only two examples, in the battle against disease and death in childbirth and infancy. Both in absolute terms and in terms of the social and geographical distribution of risk, much had still to be done in the 1940s and after. But it would be wrong to perpetuate the view that among the costs of the Depression of the early 1930s in Britain was a deterioration in the health of women in childbirth and of their infants.

I. The Course of Infant Mortality 1926-1939

Elsewhere I have charted the course of infant mortality in Britain between 1905, when complete data were first published, and 1925.[5] In the following fifteen years, the pace of improvement was maintained, both during the world economic crisis and after its subsidence in the mid-1930s. The variation in the infant mortality rate at different periods of the first year of life in England and Wales and in Scotland during the years 1926 to 1939 is shown in Tables I-II. The traditionally higher Scottish infant mortality rate, which persists to this day, is evident in perinatal mortality (during the first week of life), in neonatal mortality (during the first month of life), and in post-neonatal mortality at every point up to age one. Still, the trend of improvement during the 1930s in infant survival rates is the same throughout Britain.

As is evident from Figure 1, progress in infant health in Britain was matched by most other European countries in this period. The pace of the decline in mortality rates was much greater in Austria and Germany than it was in Britain. By the end of the 1930s Germany as well as France had infant mortality rates lower than those of Scotland, though still somewhat higher than those of England and Wales and the Netherlands. The Dutch record was the most favourable

[5] J. M. Winter, "The impact of the First World War on civilian health in Britain", *Economic History Review* (1977), pp. 487-507.

TABLE I

AGE DISTRIBUTION OF INFANT MORTALITY RATES, ENGLAND AND WALES, 1926–1939
(Deaths per 1,000 live births)

Year	Days		Weeks				Months					
	0-1	1-7	0-1	1-2	2-3	3-4	Under 1 mo.	1-3	3-6	6-9	9-12	Total
1926	10.0	11.3	21.3	4.6	3.6	2.5	31.9	11.6	10.4	8.6	7.7	70.2
1927	10.6	11.6	22.2	4.3	3.4	2.5	32.3	10.7	9.7	8.7	8.2	69.7
1928	10.4	11.2	21.6	4.1	3.0	2.4	31.1	10.7	9.2	7.4	6.8	65.1
1929	10.4	11.9	22.3	4.6	3.3	2.6	32.8	11.6	10.7	9.9	9.4	74.4
1930	10.4	11.6	22.0	3.8	2.9	2.2	30.9	9.6	7.8	6.1	5.5	60.0
1931	10.4	11.7	22.1	4.0	3.1	2.4	31.6	10.9	9.3	7.8	6.8	66.4
1932	10.6	11.8	22.4	3.8	3.0	2.4	31.6	10.8	9.1	7.2	6.3	65.6
1933	11.1	11.8	22.9	4.0	3.1	2.2	32.3	9.9	8.8	6.8	6.0	63.7
1934	10.9	11.7	22.6	3.9	2.8	2.0	31.3	8.8	7.5	5.8	5.1	58.6
1935	10.8	11.3	22.0	3.7	2.7	2.0	30.4	9.1	7.7	5.4	4.3	56.9
1936	10.7	11.2	21.9	3.5	2.7	2.0	30.2	9.3	8.3	6.0	4.9	58.5
1937	10.8	11.2	22.0	3.5	2.5	1.8	29.8	9.4	8.3	5.9	4.3	57.6
1938	10.3	10.8	21.1	3.1	2.3	1.7	28.3	8.2	7.2	5.0	4.0	52.7
1939	10.2	10.9	21.1	3.1	2.2	1.7	28.1	7.9	7.0	4.4	2.9	50.4

Source: *Registrar-General's Statistical Review of England and Wales, 1926-1939.*

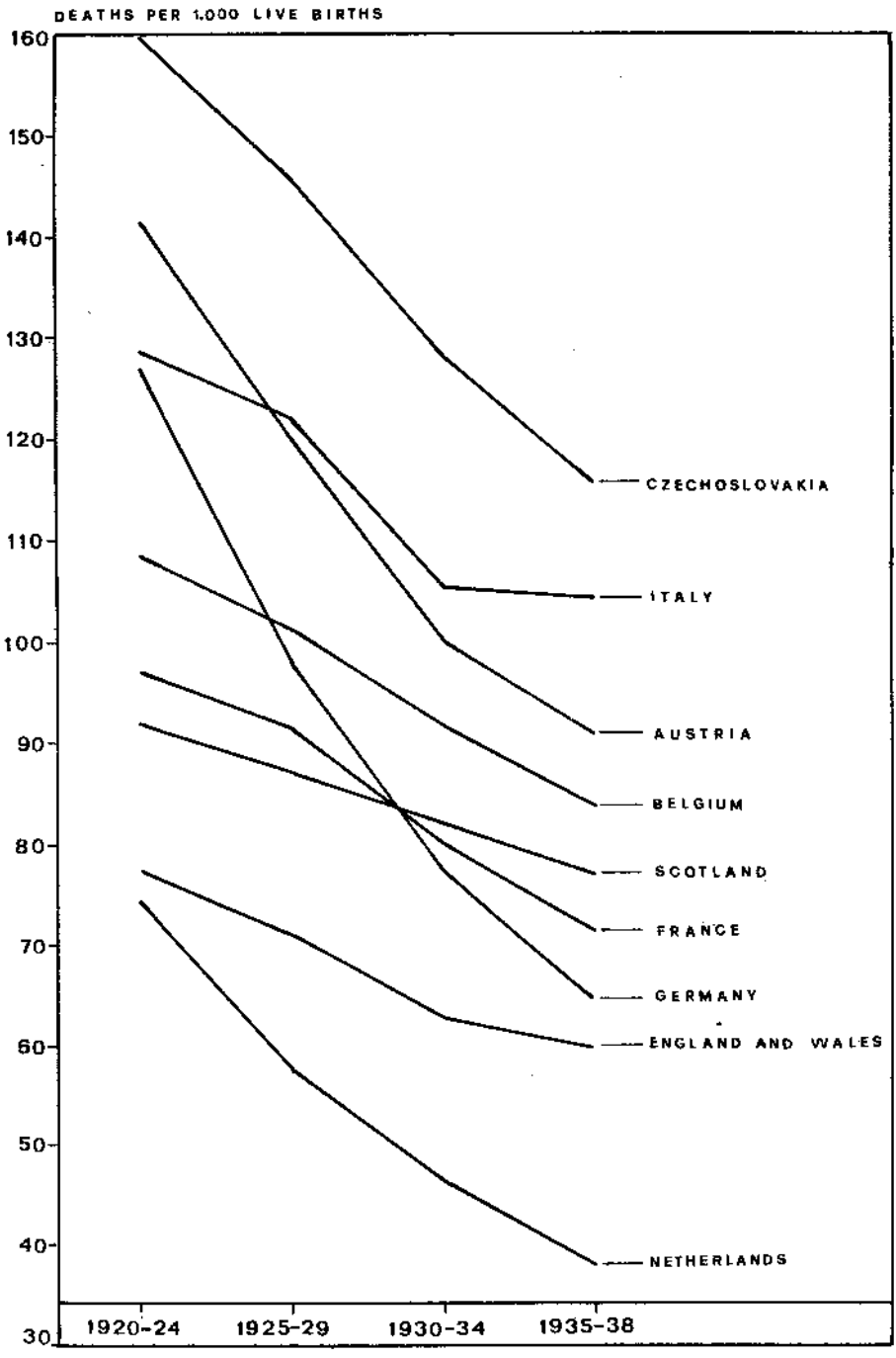
TABLE II

AGE DISTRIBUTION OF INFANT MORTALITY RATES IN SCOTLAND, 1926–1939
(Deaths per 1,000 live births)

	Days		Weeks				Months					
Year	0-1	1-7	0-1	1-2	2-3	3-4	Under 4 wks	4 wks to 3 months	3-6	6-9	9-12	Total
			Weeks 1-4						Months 6-12			
1926			24.0		12.4		36.4	11.8	14.1	20.8		83.1
1927			24.5		12.6		37.1	14.0	14.8	22.7		88.7
1928			23.5		13.2		36.7	12.3	14.8	21.9		85.7
1929			24.6		12.7		37.3	12.5	14.4	22.6		86.8
1930			23.6		11.6		35.2	13.5	13.5	20.9		83.0
1931	12.0	12.7	24.7	4.1	3.6	3.4	35.8	11.9	13.2	10.8	10.1	81.1
1932	12.2	11.6	23.8	4.4	4.1	3.6	35.9	13.9	15.4	11.1	9.7	86.2
1933	13.5	12.6	26.1	4.5	3.6	3.4	37.6	12.5	12.9	9.8	8.3	81.1
1934	12.4	12.3	24.7	4.4	3.9	3.2	36.2	12.0	12.6	8.7	8.1	77.7
1935	11.7	13.1	24.8	5.5	4.7	3.4	38.4	11.2	11.9	8.8	6.4	76.8
1936	11.9	13.0	24.9	4.7	4.1	3.9	37.6	13.3	14.1	9.6	7.7	82.3
1937	12.0	13.1	25.1	5.4	4.1	3.6	38.2	13.0	13.9	8.5	6.7	80.3
1938	11.6	12.7	24.3	4.3	3.2	3.1	34.9	11.2	10.7	7.3	5.3	69.5
1939	13.3	13.0	26.3	4.0	3.3	2.9	36.5	10.5	10.7	6.3	4.4	68.5

Source: *69th-83rd Annual Reports of the Registrar General for Scotland, 1926-1939.*

Fig. 1 - Infant mortality rates in selected European countries, 1920-1938
Deaths per 1,000 live births



in Europe. To give some idea of how advanced were Dutch efforts to protect infant life, the *total* infant mortality rate over the period 1935-38 in Holland was only slightly greater than the *neonatal* mortality rate in Scotland in the same years. For our purposes, what is of equal importance is that the trend of improvement in the Netherlands continued after 1935, during what were for Holland the worst years of the Depression, just as progress in the protection of infant life had been maintained in Germany, France, and Britain during the most severely depressed years of the early 1930s. The aggregate data do not support the contention that the world economic crisis undermined the health of the infant population of Europe.

In Britain the gains of the 1930s were not registered at earliest stages of infancy. There was virtually no improvement in perinatal mortality rates in the 1930s. Only very modest changes in neonatal mortality rates occurred in the same period. The one exception to this rule is the case of illegitimate babies, whose survival rate in the first month of life improved strikingly in the five years prior to the outbreak of the Second World War. As Figure 2 illustrates, the disturbances of the first months of the war to some extent reversed the downward trend of illegitimate neonatal mortality in England and Wales. Still, in the decade 1929-39, the excess of illegitimate over legitimate neonatal mortality had been halved. The pre-war data do not suggest a deterioration of conditions of confinement or the management of delivery during the decade of the Great Depression.

It is at later months of infancy that we can see evidence of major improvements in infant health in Britain during the 1930s. Striking gains were made in English and Welsh and in Scottish infant survival rates at ages after six months, when babies were normally weaned and thereby lost the protection of their mothers' antibodies. A 62% decline in the mortality rate at ages 6-12 months occurred between 1929 and 1939 in England and Wales. Scottish data for the decade show a 53% improvement for the same age group. Setbacks occurred in England and Wales in 1931 and throughout Britain in 1936. But the data for 1930, 1932-35, and 1937-39 demonstrate conclusively that infant mortality had diminished during both the upswings *and* the downswings of the trade cycle. Indeed, the most important feature of the aggregate data, as Figure 3 shows, is the persistence of the trend towards better infant health for the nation as a whole despite the economic crisis of the early years of the decade.

Improvements in infant survival rates occurred independently of the movement of the birth rate. In both England and Wales and in Scotland, the mean age at marriage for both brides and bridegrooms dropped in the 1930s. In England and Wales in particular, the long-term decline in the birth rate was checked in the 1930s. After 1933, it even began to rise.[6] But both early and late

[6] *Registrar-General's Statistical Review of England and Wales, 1939*, Table 2, p. 52. Hereafter cited as " RGR ", for England and Wales, and " RGRS " for Scotland.

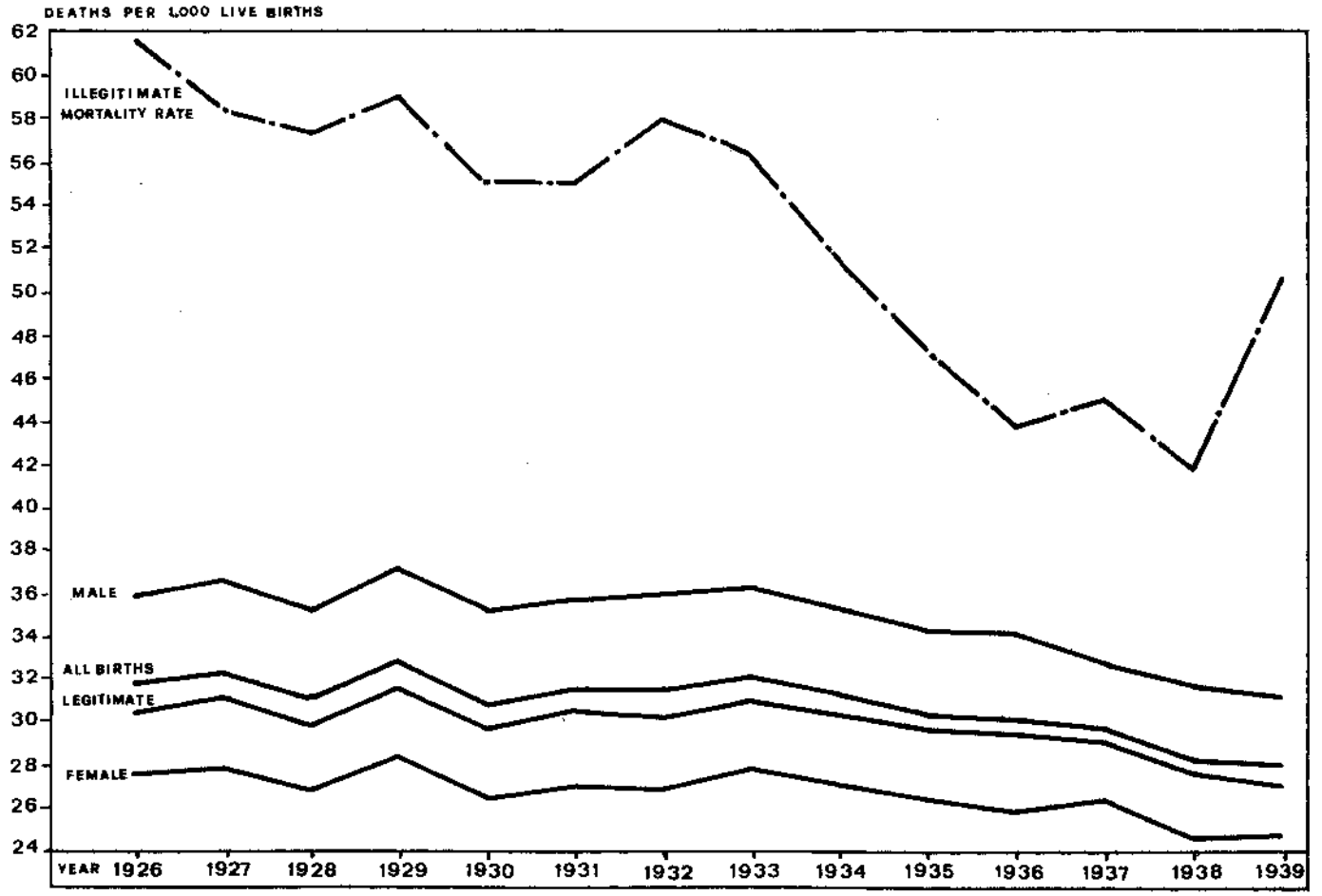
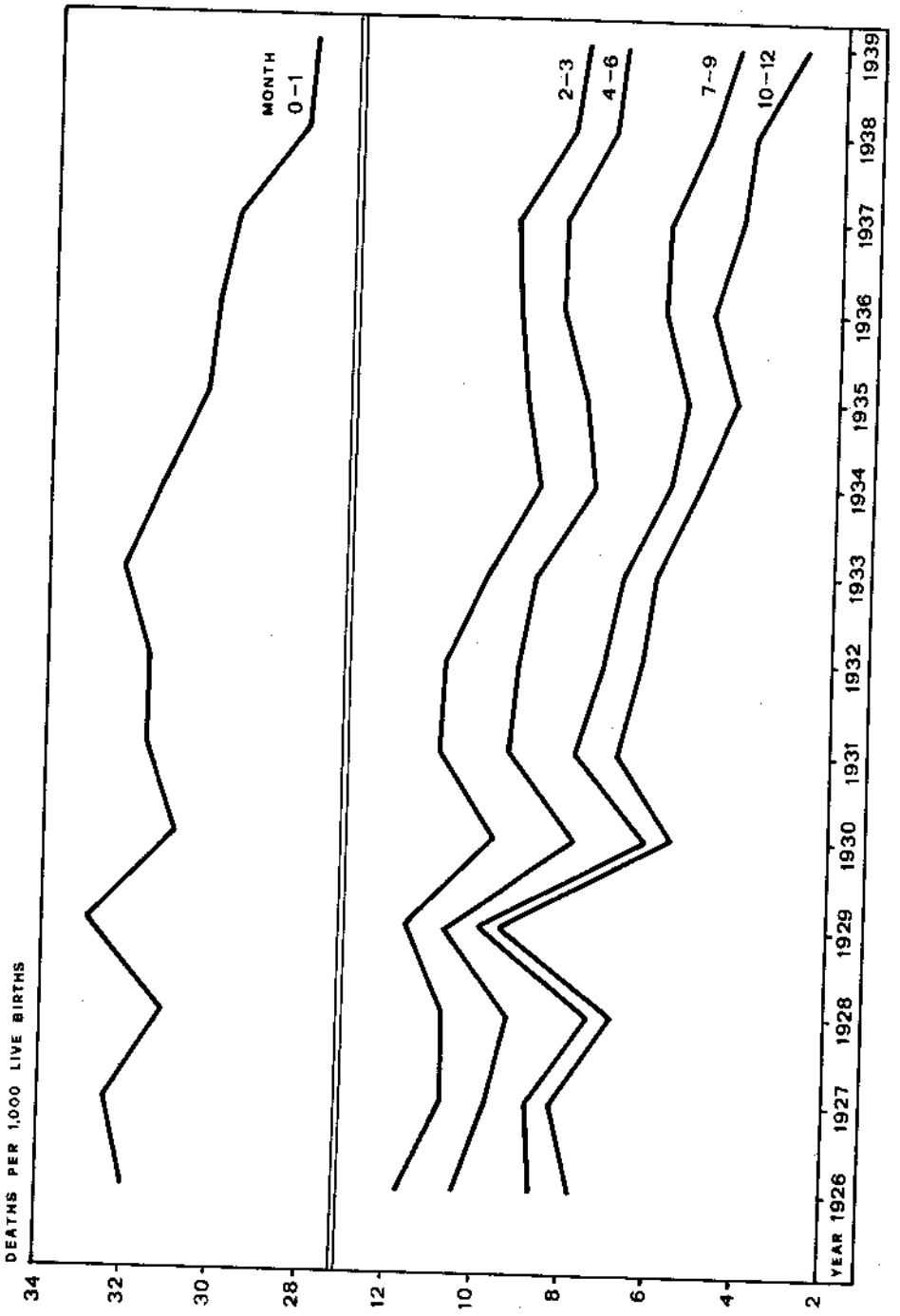


Fig. 2 - Neonatal mortality rates, England and Wales, 1926–1939
Deaths per 1,000 live births

Fig. 3 – Infant mortality rates, England and Wales, 1926–1939
Deaths per 1,000 live births



in the decade, infant mortality rates declined. In addition, the long-term decline in marital fertility, the onset of which can be dated from the 1870s,[7] reduced the size of one group of high-risk births (at high parity) but replaced them proportionately by another group of high-risk births (first births).[8] Movements in fertility in the 1930s are therefore uninstructive in explaining concurrent movements in infant mortality.

The aggregate data obscure important traditional variations between infant mortality rates in different parts of the country. Throughout the first quarter of this century, the south of England enjoyed a much more favourable infant survival rate than did the industrial north-west, the north-east or Wales.[9] This geographical divide persisted in the 1930s, as Table III shows. But equally significant is the fact that no deterioration occurred in the relative position of counties whose population suffered high unemployment in the early 1930s. The Registrar-General of England and Wales provided comprehensive data on regional variations in vital statistics from 1931. In that year, the mining and industrial region of South Wales had an infant mortality rate 15% above the rate for England and Wales. In the next year, which was the worst in terms of unemployment of the entire interwar period, infant mortality in South Wales had improved relative to the nation as a whole, even though in Glamorganshire and elsewhere, infant mortality rates were still 10% above the national figure. To take a counter example, in 1936, infant mortality rates in England and Wales rose. But it was the London area which bore the brunt of the deterioration in infant health, whereas Lancashire and Cheshire, and South Wales improved their positions vis-à-vis the country as a whole.

Other demographic evidence raises doubts about the validity of the contention that there was a direct correlation between infant health and the state of trade in the 1930s. Taking the infant mortality experience of England and Wales in 1926-29 as the standard of comparison, Tables IV-V present information on infant health in selected urban centres in the succeeding decade. Tables VI-VII provide similar data about Scottish urban areas, once again using the 1926-29 statistics as the basis of calculations. The index figures of neonatal mortality rates in England and Wales (Table IV) show a modest 12% improvement in the pre-war decade, most of which occurred after 1933. Data for some urban areas, such as the county boroughs of Birmingham, Leeds, Stockport, Manchester and Merthyr Tydfil, show as great or greater gains. But statistics for other urban areas, such as Coventry, which was relatively prosperous during the

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[7] On which, see M. S. Teitelbaum's forthcoming book on Britain and Ireland in the series produced by the Office of Population Research at Princeton on the decline of European fertility.

[8] C. M. Burns, *Infant and Maternal Mortality in Relation to Size of Family and Rapidity of Breeding* (Newcastle-upon-Tyne, 1942), *passim*.

[9] Winter, "Civilian Health", Table 5.

TABLE III

INDEX OF INFANT MORTALITY RATES, ENGLAND and WALES, 1931-1939, BY REGION
(England and Wales = 100)

	1931	1932	1933	1934	1935	1936	1937	1938	1939
England and Wales	100	100	100	100	100	100	100	100	100
South East	81	86	81	89	83	89	86	88	82
Greater London	89	92	85	98	90	97	94	94	86
Rest of Sth. East	69	76	74	76	73	77	75	80	76
North	120	117	119	113	119	115	118	114	118
North I	134	123	125	132	133	127	129	119	126
II	114	108	111	104	120	105	115	113	114
III	111	113	113	101	102	111	105	103	108
IV	120	119	122	115	122	114	121	119	120
Midlands	100	101	102	98	103	101	99	99	103
Midlands I	100	102	103	102	103	100	99	101	105
II	101	100	101	92	103	102	100	95	98
East	84	82	82	84	78	84	84	84	83
South West	80	79	78	84	78	81	80	88	85
Wales	112	106	116	110	111	106	109	108	118
Wales I	115	110	122	111	111	106	110	109	119
II	102	97	99	106	110	105	105	104	116
County Boroughs	116	115	118	112	116	113	114	114	115
Other Urban Districts	98	96	98	94	98	94	96	94	97
Rural Districts	87	89	88	90	86	90	87	90	93
Greater London:									
Admin. County	98	102	93	115	102	112	105	109	94
Outer Ring	79	80	77	81	79	83	85	83	81

REGIONS

South East:
Bedfordshire
Berkshire
Buckinghamshire
Essex
Hertfordshire
Kent
London
Middlesex
Oxfordshire
Southampton
Surrey
Sussex
Isle of Wight

North I:
Durham
Northumberland

North II:
Cumberland
Westmoreland
Yorkshire - East Riding
Yorkshire - North Riding

North III:
Yorkshire - West Riding
Yorkshire - County Borough

North IV:
Cheshire
Lancashire

Midlands I:
Gloucestershire
Herefordshire
Shropshire
Staffordshire
Warwickshire
Worcestershire

Midlands II:
Derbyshire
Lincolnshire, parts of
Northamptonshire
Nottinghamshire
Peterborough, Soke of

South-West:
Cornwall
Devon
Somerset
Wiltshire

East:
Cambridgeshire
Ely, Isle of
Huntingdonshire
Lincolnshire, parts of
Norfolk
Rutlandshire
Suffolk

Wales I:
Brecknoshire
Carmarthenshire
Glamorganshire
Monmouthshire

Wales II:
Anglesey
Caernarvonshire
Cardiganshire
Denbighshire
Flintshire
Merionethshire
Montgomeryshire
Pembrokeshire
Radnorshire

Source: *Registrar-General's Statistical Review of England and Wales, 1931-1939.*

TABLE IV

INDEX OF NEONATAL MORTALITY RATES IN ENGLAND AND WALES AND IN SELECTED URBAN DISTRICTS, 1926-1938
(England and Wales, 1926-29 = 100)

	1926-1929	1930	1931	1932	1933	1934	1935	1936	1937	1938
England & Wales	100	97	100	100	100	97	94	94	94	88
Greater London	78	75	78	78	81	78	78	75	72	72
Chelsea	72	31	50	63	84	94	81	50	47	116
Hackney	75	66	56	72	82	63	75	122	78	103
Hampstead	81	88	100	97	59	63	75	122	78	103
Kensington	78	69	72	88	97	78	78	66	84	84
Stepney	69	69	91	66	72	72	72	103	66	66
Wandsworth	84	88	100	84	81	91	78	84	88	72
Birmingham	100	91	100	103	97	100	106	94	97	84
Bradford	113	119	119	131	103	116	106	94	97	84
Coventry	116	94	106	116	119	91	94	97	84	109
Leeds	119	119	100	113	116	109	103	94	103	103
Liverpool	100	100	100	97	106	100	97	103	94	91
Manchester	113	100	106	109	109	106	103	106	109	100
Merthyr Tydfil	134	106	116	153	106	141	113	106	119	122
Stockport	119	103	138	128	156	94	100	113	109	103
Wigan	125	159	138	128	122	128	138	122	159	134

Source: *Registrar-General's Statistical Review of England and Wales, 1926-1938.*

entire period, and for Bradford, Liverpool, and Wigan, which were not, do not show a clear trend which could be related to economic conditions. The same is true within Greater London, which had a relatively good overall record of low neonatal mortality rates. To compare Hampstead or Kensington with Stepney or Wandsworth, for example, is to see clearly the impossibility of linking early infant mortality with the vagaries of economic activity in the 1930s.

Post-neonatal mortality rates in urban areas of England and Wales and Scotland show the same complex pattern which cannot be reduced to a simple response to movements in real wages or unemployment. 1930 and 1932 were years of hardship for large sections of the urban working class throughout Britain. And yet in Liverpool, Stockport, and Merthyr Tydvil, to take just three cases, infant mortality rates in those years improved both absolutely and relative to the national rate. (Table V). In contrast, in 1936 and 1937, when the worst of the depression was over, infant mortality rates rose in prosperous Coventry and in unprosperous Merthyr Tydvil, but dropped in Liverpool and in Birmingham. Within Greater London, boroughs of very different social

TABLE V

INDEX OF INFANT MORTALITY RATES IN ENGLAND AND WALES AND IN SELECTED URBAN DISTRICTS, 1926-1939
(England and Wales, 1926-29 = 100)

	1926-1929	1930	1931	1932	1933	1934	1935	1936	1937	1938
England & Wales	100	86	94	93	91	84	81	84	83	76
Greater London	87	77	93	96	86	96	83	94	86	81
Chelsea	93	57	60	74	111	93	86	76	84	114
Hackney	89	71	86	77	73	80	69	90	61	80
Hampstead	79	83	87	77	54	76	70	94	77	81
Kensington	107	99	109	140	104	133	113	104	119	111
Stepney	106	109	111	86	91	121	87	141	86	90
Wandsworth	81	77	89	90	73	83	79	83	91	66
Birmingham	104	87	100	97	94	96	93	90	86	87
Bradford	120	107	101	107	114	89	91	119	100	84
Coventry	97	79	84	101	91	76	66	74	71	80
Leeds	126	97	110	126	116	101	110	109	99	89
Liverpool	140	117	134	130	140	114	120	109	117	106
Manchester	129	110	121	123	107	99	101	110	109	99
Merthyr Tydfil	139	131	150	104	129	109	107	113	113	111
Stockport	117	81	113	103	119	77	81	109	81	80
Wigan	153	153	147	130	157	96	140	117	131	141

Source: *Registrar-General's Statistical Review of England and Wales, 1926-1939.*

character such as Hackney and Hampstead or Kensington and Stepney show similar oscillations, which defy primarily economic explanation.

The Scottish data in Tables VI-VII are only marginally easier to relate to a division of the course of infant mortality between areas of urban prosperity and areas of urban squalor. A comparison of Glasgow and Edinburgh shows the advantages of an infancy spent in the Scottish capital, especially after the first month of life. But over the decade 1929-38, Aberdeen and Dundee made even greater gains in infant survival rates than did Edinburgh or Scotland as a whole.

The upward movement in post-neonatal mortality at several points in the 1930s was caused by outbreaks of viral and of bacterial infections which may be viewed as their sequelae. For example, the high infant mortality rate in England and Wales in 1929 is attributable to an outbreak of influenza, which occurred thereafter in a fairly regular two to three-year cycle.[10] The 1932 recrudescence

[10] *11th Annual Report of the Ministry of Health for 1929-30*, p. 71. Hereafter cited as "MH". W. I. B. BEVERIDGE, *Influenza. The Last Great Plague* (1977), p. 18.

TABLE VI

INDEX OF NEONATAL MORTALITY RATES IN SCOTLAND, AND IN ABERDEEN, DUNDEE, EDINBURGH, AND GLASGOW BURGHS, 1926-38
(Scotland, 1926-29 = 100)

	1926-1929	1930	1931	1932	1933	1934	1935	1936	1937	1938
Scotland	100	95	97	97	102	98	104	101	104	95
Aberdeen	111	86	103	105	94	107	101	88	94	89
Dundee	122	128	98	87	117	97	97	102	88	107
Edinburgh	89	92	90	90	91	83	95	96	105	93
Glasgow	104	93	98	97	103	92	117	113	117	99

TABLE VII

INDEX OF INFANT MORTALITY RATES IN SCOTLAND, AND IN ABERDEEN, DUNDEE, EDINBURGH, AND GLASGOW BURGHS, 1926-38
(Scotland, 1926-29 = 100)

	1926-1929	1930	1931	1932	1933	1934	1935	1936	1937	1938
Scotland	100	96	95	100	94	90	89	96	93	81
Aberdeen	115	93	105	108	92	89	105	82	84	83
Dundee	129	132	107	84	114	86	79	94	101	90
Edinburgh	91	95	80	85	77	73	81	79	81	71
Glasgow	123	117	121	130	112	114	114	127	121	101

Source for Tables VI-VII: *69th-83rd Annual Reports of the Registrar-General for Scotland, 1926-1938.*

of infant mortality in Scotland and those of 1936 in Scotland and in England and Wales were primarly due to an outbreak of measles.[11] Why such eruptions of lethal infectious diseases occur is unfortunately still a matter of considerable disagreement among nutritionists, demographers, and medical authorities.

Fortunately, these setbacks were merely temporary and were mitigated to a great extent by a decline in the toll taken by diarrhoea and enteritis. This improvement completely changed the seasonal distribution of infant mortality. Until the First World War, the summer months were the most dangerous in terms of infant health because of the likelihood of outbreaks of epidemic diarrhoea. But during the 1914-18 war and increasingly throughout the interwar period, the decline of lethal enteric disease meant that the winter months became the most difficult period for infant, as well as for geriatric, health.[12] We can

[11] RGR, 1939, Medical, Table 12, p. 51. RGRS, 1932, p. VII and 1936, p. VII.
[12] RGR, 1930, p. 6, and 1938-39, Table VIII, p. 20.

locate fairly confidently the cause of the decline of this infectious disease in advances in purification and refrigeration of food and especially of the milk supply.[13]

There are two other arguments which we must consider in an evaluation of the course of infant mortality rates in the 1930s. The first is Richard Titmuss' claim that infant mortality rates provide " a glimpse of the great and widening gulf that separates one class of the people from another ". This was because the greatest gains in the period 1911-32, and probably thereafter, were registered by middle-class families, whose demographic advantage over the working class thus increased. Taking infant mortality rates at ages 6-12 months for legitimate births, he showed that death rates for Class V (unskilled workers') infants exceeded those for Class I (professional families') infants by 173% in 1911, by 324% in 1921-3, and by 439% in 1930-2.[14]

Data for 1939, which were not available when Titmuss published these findings, show clearly that he was mistaken in assuming that this demographic gap had widened in the 1930s. The excess legitimate infant mortality rates of Class V over Class I had been reduced significantly between 1932 and 1939, both at ages 6-12 months and throughout the first year of life.[15] Not too much should be made of these comparisons for two reasons. Firstly, the base year 1911 was exceptionally unhealthy. An extremely hot summer, during which there occurred a national transport strike disrupting food supply throughout the country, meant that conditions were particularly conducive to the spread of enteric disease, even among professional families. The gap between Class V and Class I in 1911, therefore, may not be typical of the infant mortality differential between classes in the early part of this century. Secondly, the data for 1939 may be distorted by war conditions, such as the massive evacuation of London in fear of the Blitz of 1939 that never took place. Still, that there was a gap between the infant mortality rates of children of unskilled labourers and those of professional men and women in the 1930s is undeniable. What is untrue is that this gap widened during or because of the Great Depression.

The second argument we must examine relates infant mortality rates to political developments on the local level. One student of the Labour party in this period claimed that " Nearly every municipality which has come under Labour rule has expanded its public health facilities. Particular emphasis is usually given to maternity and child welfare work ".[16] It could be argued, therefore, that continued progress in the 1930s in reducing infant mortality rates was due

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[13] WINTER, " Civilian Health ", p. 501.

[14] TITMUSS, *Birth*, pp. 44-5.

[15] Calculated from Table Q1 of *Registrar-General's Decennial Supplement. England & Wales 1931. Part II B. Occupational Fertility 1931 and 1939* (1953), p. 86.

[16] D. E. MCHENRY, *The Labour Party in Transition, 1931-1938* (1938), p. 212.

in part to the fact that in these years there was a major increase in the number of Labour-controlled councils committed to extend and improve public health facilities.[17]

This claim can be tested by a comparison of infant mortality rates in districts whose councils were controlled by the Labour party and in districts where Labour at no time or only intermittently controlled local government. Table VIII presents index figures of infant mortality rates in three groups of councils: Labour-controlled, mixed-control, and non-Labour-controlled throughout the 1930s. Since Labour held only seven councils without interruption in this period, two groups of seven mixed-control and non-Labour councils, of a similar geographic distribution, have been chosen for purposes of comparison. It is apparent from Table VIII that areas in which Labour controlled local government did not register greater improvements in infant mortality rates than in areas either partly controlled or uncontrolled by Labour during the 1930s. In the case of London, though, there is some evidence that Labour-controlled boroughs experienced greater gains in infant health than did those in which

TABLE VIII

INDEX OF INFANT MORTALITY RATES IN THREE GROUPS OF COUNTY, MUNICIPAL, AND METROPOLITAN BOROUGHS IN ENGLAND AND WALES, 1926–1938
(1926-29 = 100)

	1926-1929	1930	1931	1932	1933	1934	1935	1936	1937	1938
Seven Labour Party-Controlled Councils *	100	92	101	91	95	75	78	84	82	78
Seven Mixed Party-Controlled Councils **	100	82	96	95	95	78	80	80	83	75
Seven Non Labour-Controlled Councils ***	100	85	95	95	103	85	81	76	86	72

* Councils held by Labour throughout the 1930s: East Ham, Merthyr Tydfil, Rotherham, Sheffield, Walthamstow, West Ham, Wigan.

** Councils held by Labour for part of the 1930s: Barnsley, Derby, Leeds, Norwich, Swansea, Tottenham, Willesden.

*** Councils not held by Labour during the 1930s: Birmingham, Cardiff, Croydon, Halifax, Liverpool, Reading, Stockton-on-Tees.

[17] I owe this suggestion to Prof. John Saville.

control was shared or denied to Labour in this decade. (Table IX) We can date this divergence from the mid-1930s, when the Labour party gained overall control of the London County Council. In the late 1930s, then, London seems to have been an exception to the rule that party politics at least on the local level had little bearing on the pace of improvement in infant health.

II. The Decline of Maternal Mortality

On a number of grounds, it is notoriously difficult to examine rigorously trends in maternal mortality. Firstly, there is no way of determining accurately the population at risk, that is, the number of women who are pregnant during any one year. As a result, the denominator of maternal mortality rates is usually not all pregnant women, but rather all registered live births or all registered live and stillbirths. Secondly, cause of death is frequently mis-reported on the death

Table IX

INDEX OF INFANT MORTALITY RATES IN THREE GROUPS OF LONDON METROPOLITAN BOROUGHS, 1926-1938
(1926-1929 = 100)

	1926-1929	1930	1931	1932	1933	1934	1935	1936	1937	1938
Five Labour Party-Controlled Borough Councils *	100	86	98	103	95	110	86	94	81	79
Twelve Mixed Party Controlled Councils **	100	91	100	99	90	101	87	104	91	90
Eleven Non-Labour-Controlled Councils ***	100	90	97	103	90	100	93	98	95	95

* Councils held by Labour throughout the period 1931-38: Bermondsey, Deptford, Greenwich, Poplar, Woolwich. (Control in Woolwich gained in 1932).

** Councils held by Labour for part of the period 1931-38: Battersea, Bethnal Green, Camberwell, Finsbury, Fulham, Hackney, Hammersmith, Islington, Lambeth, Shoreditch, Southwark, Stepney.

*** Councils not held by Labour during the period 1931-38: Chelsea, Hampstead, Holborn, Kensington, Lewisham, St Marylebone, St Pancras, Stoke Newington, Wandsworth, Westminster.

Sources, Tables VIII-IX: *The Times*, November 1931, 1934, 1937, for results of municipal elections; *Registrar-General's Statistical Review of England and Wales, 1926-38*, for infant mortality rates.

certificates used by Registrars-General to compile their statistics. Thirdly, stillbirth data were reported regularly only from 1927. The study of maternal mortality is, therefore, fraught with statistical problems.

The general outline of British experience in the 1930s seems, nevertheless, to be clear. Until the mid-1930s, the maternal mortality rate remained stubbornly high at about 4 per 1,000 live births or 3.6 per 1,000 live and stillbirths in England and Wales. The Scottish figure is somewhat higher, at about 5 deaths per 1,000 live births. Starting in 1935, though, the maternal mortality rate throughout Britain declined until it had reached the level of 2.5 deaths per 1,000 live and stillbirths in England and Wales in 1939. Post-war improvements were further continuations of the trend set in the mid-1930s.

Why childbirth in 1934 had remained as dangerous for the mother as it had been two decades earlier was the subject of considerable discussion in the 1930s. Three explanations were advanced. The first concerned social deprivation associated with the Depression. The second pointed to the failure of the majority of pregnant women to take full advantage of ante-natal care. The third raised the question of the competence of obstetrical care.

A study sponsored by the Ministry of Health explored the hypothesis that economic distress had led to an increase in maternal mortality during the worst years of the Depression. The study examined in detail statistics relating to women's work, overcrowding at home, and unemployment in forty selected areas of England where maternal mortality in the early 1930s was above the level of 5 deaths per 1,000 live births per year. Comparisons were made with seven districts of low maternal mortality rates. The report's major conclusion was that

> there is no evidence that during this period the rise and fall of unemployment in individual areas included in these groups was accompanied by a corresponding rise and fall of puerperal mortality either in the same year or in the previous year.

In some cases, particularly that of London, areas of low unemployment had high maternal mortality rates, whereas areas of high unemployment, such as Liverpool, had low maternal mortality rates. In addition, no direct correlation was found between overcrowding, however defined, and maternal mortality. The only positive correlation reported was between levels of maternal mortality and rates of women's employment in industry.[18]

In contrast, evidence of a positive correlation between levels of unemployment and of maternal mortality was reported in an examination of the Welsh data. Forty percent of the population of Wales lived in what were known as "special areas", where the effects of the Depression were particularly severe. In many such cases, maternal mortality rates rose between the periods 1924–28

[18] *Report on an Investigation into Maternal Mortality* (1937), pp. 63, 74, 81. For a discussion of this report and other studies, see D. PALMER, *The Struggle for a National Maternity Service* (Warwick M.A., 1979).

and 1929-34. For instance, these rates in 1924-28 in Aberdare and Pontypridd urban districts were 5.69 and 6.75 respectively. In the period 1929-33, the rates had risen to 8.52 and 7.97. In the "special areas" as a whole, the increase was from 5.40 to 6.54. The inescapable conclusion was that "there had been an increase in sickness and ill-health among the mothers in the industrial areas of South Wales" during the worst years of the Depression.[19]

The state of health of women in childbirth in South Wales was fortunately unrepresentative of that of Britain as a whole. Indeed, traditionally high marital fertility, infant mortality, and maternal mortality rates set this area apart from the general demographic development of Britain. It is striking that the evidence of distress in South Wales is not matched by similar signs of deteriorating ill health among the mothers of English mining communities or of other working-class districts.

One indication of the danger of generalizing from the Welsh experience to that of the British working class as a whole is the fact that the maternal mortality rate throughout this period was higher in the West End of London than in the East End.[20] One reason for this surprising disparity between wealth and welfare is that the West End had a lower birth rate and a higher proportion of first births, which take a higher toll of maternal life than do births of intermediate rank order. Since the number of fifth-plus births, which are also dangerous, had been reduced too, it followed that low fertility and relatively high maternal mortality were likely to go together. A higher age at marriage among the well-to-do also increased their risks during childbirth. These facts were confirmed in the Registrar-General's *Statistical Review* for 1934. That there were proportionately more first births in professional families than in those of working-class families helps account for the higher maternal mortality rate among the former.[21] To have demonstrated that the risks of puerperal sepsis diminished as one went down the social scale was to show the impossibility of making a direct link between economic insecurity and maternal mortality.

If the Depression was not primarily to blame for the failure of attempts to reduce the maternal mortality rate, we still must consider, first the responsibility of women themselves for not taking advantage of ante-natal and obstetrical care, and secondly, the adequacy of such services as existed. A number of reports issued in the 1930s threw light on both of these problems. In 1930 and 1932, the Ministry of Health issued reports on maternal mortality, in which the claim was made that about half the deaths in childbirth were preventable. Sound midwifery, in the opinion of Sir George Newman, chief medical officer of the Ministry, was the key to a reduction of maternal mortality.[22] A similar

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[19] *Report on Maternal Mortality in Wales* (Cardiff, 1937), pp. 92, 116-19.

[20] "London mortality services", *Lancet*, 30.5.36, p. 1266.

[21] RGR, 1934, p. 123.

[22] *Report of the Departmental Committee on Maternal Mortality* (1932), p. 134.

conclusion was reached by a committee of the New York Academy of Medicine in 1933. They too found that faulty obstetrical care, in this case by general practitioners, was the cause of persistently high maternal mortality rates.[23] In 1935, a study of maternal mortality in Scotland since 1929 concluded that 58.7% of the deaths of women in childbirth in those years were avoidable. In 21.6% of the cases, the patient was at fault for not seeking out antenatal care. But in 37.6% of the cases, the faulty technique of the attendant was identified as the primary cause of death.[24]

The most likely explanation of the persistence of high maternal mortality rates in Britain in this period is probably that both medical and para-medical care *and* the attitudes of pregnant women to it left much to be desired prior to the mid-1930s. Let us consider evidence of the interaction of these factors, before examining each in turn. The imaginative work of the medical officer of health of Rochdale, traditionally an area of high maternal mortality, demonstrated the importance of a change in approach to maternity by all concerned rather than merely a change in obstetrical personnel. Dr Andrew Topping, later chief medical officer of the London County Council, conducted a campaign in 1932-34 to inform the women of Rochdale of the public health facilities available to them and to convince them of the vital importance of attendance at an ante-natal clinic. The tone of the campaign can be judged by one of the simple slogans used in it. The women of Rochdale were exhorted, " Don't listen to grandmother, but visit our antenatal clinic and give yourself and your unborn baby a square deal ".[25] Dr Topping claimed that twice-weekly speeches to any group that would listen, the cooperation of the church and the press, and persistent propaganda all helped bring about an important change in women's attitudes to their own welfare. Mothers learned what was their right to demand. As a result attendances at ante-natal clinics increased significantly. And apparently by mutual agreement between mothers and doctors, there was less intervention in labour. The rate of instrumental delivery and of maternal mortality dropped in consequence, so Topping believed.[26] Other medical authorities concurred. One report of " the Rochdale experiment " in the *British Medical Journal* attributed much of its success to the fact

> that a great influence has been exerted by the women themselves in leading to the creation of a maternity system which has brought greater security during pregnancy and labour... [Women themselves helped] discourage the belief, which

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[23] New York Academy of Medicine. *Report on Maternal Mortality in New York City* (New York, 1933).

[24] C. A. DOUGLAS and P. L. MACKINLAY, *Report on Maternal Morbidity and Mortality in Scotland* (Edinburgh, 1935).

[25] " Society of Medical Officers of Health ", *Lancet*, 7.3.36, p. 545.

[26] " Royal Sanitary Institute ", *Lancet*, 20.4.35, p. 936.

> so often prejudices both the peace of mind and the practice of the practitioner, that the best doctor is he who can deliver them most quickly.[27]

The combination of more attention during pregnancy and less intervention during childbirth was responsible, therefore, for a reduction in Rochdale's maternal mortality rate from the appallingly high level of 10 per 1,000 live births in 1931 to 3.9 in 1932-34, which was about the norm for the rest of England.[28] Unemployment levels in Rochdale had not changed in the years in question.[29]

The Professor of Gynaecological Surgery at the London Hospital, Dr (later Sir) Eardley Holland went further than Topping and cited the " Rochdale experiment " to support his contention that the problem of maternal mortality was " first and foremost one of obstetrical personnel ". Until doctors and midwives were better trained in obstetrics as a specialist branch of medical practice, he claimed, maternal mortality would remain high.[30]

Not surprisingly, a number of physicians were incensed about what they saw as an accusation of dangerous if not criminal malpractice. At the British Medical Association annual meeting of 1935, one doctor urged that " Efforts should be made to combat propaganda based on the alleged incompetence of general practitioners ". This statement was followed by the introduction of a resolution that public discussion of this problem is harmful and tends " to terrify childbearing women, and is, in itself, a cause of increased mortality ". The state of medical opinion, or at least part of it, is reflected by the fact that the report notes that this resolution was " carried amid cheers ".[31] The *Lancet* caught the flavour of the controversy when it remarked in a leading article that " Discussions about maternal mortality resemble discussions about Soviet Russia in that the participants tend to be confirmed in the views they already hold ".[32]

Despite the growls of offended general practitioners, the anti-interventionist case was not so easily dismissed. By the early 1930s, a portable apparatus to administer analgesics had been tested satisfactorily in Liverpool.[33] In the following years, an increase in the use of analgesics and anaesthetics was noted. In many cases, labour was prolonged, and in consequence, the chances of and risks

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[27] W. H. F. Oxley, M. H. Phillips, and J. Young, " Maternal mortality in Rochdale. An achievement in a black area ", *British Medical Journal*, 16.2.35, p. 304.

[28] " Royal Sanitary Institute ", *Lancet*, 20.4.35, p. 936.

[29] " Parliamentary intelligence ", *Lancet*, 22.6.36, p. 1500.

[30] Eardley Holland, " Maternal mortality ", *Lancet*, 27.4.35, p. 976.

[31] " BMA ", *Lancet*, 27.7.35, p. 211.

[32] " Maternity and public opinion ", *Lancet*, 17.10.36, p. 927.

[33] *Maternity in Great Britain. A Survey of Social and Economic Aspects of Pregnancy and Childbirth Undertaken by a Joint Committee of the Royal College of Obstetricians and Gynaecologists and the Population Investigation Committee* (1948), p. 78.

associated with instrumental delivery increased.[34] The Director of the Obstetrical Unit of University College London estimated in 1932 that one-quarter of all interventions in labour were unnecessary.[35] Another authority claimed that there had been in the 1930s a major increase in intentional abortion, estimated at between 110,000 and 150,000 per year, of which 40% were criminal. Here was perhaps the most blatant form of physiologically unnecessary intervention in pregnancy.[36] All of these factors were bound to raise maternal mortality rates or at least to prevent them from falling.

The debate about the effects of intervention in childbirth still goes on, and in any event, no one claimed that the only cause of high maternal mortality rates was poor obstetrical care. But above all, it is important to keep in mind the fact that the onset of the decline of maternal mortality coincides with the introduction of new drugs, the sulphonamides. Doctors at Queen Charlotte's Hospital, London conducted the first clinical trials of one drug on 64 women suffering from haemolytic streptococcal puerperal infections. The results of their tests were astonishing. In the period 1931-35, the death rate for all cases infected by haemolytic streptococci was 23%. In the first six months of 1936, when the sulphonamide "prontosil" was first used, the death rate had reduced to 4.7%. There was no evidence that the 64 cases treated in 1936 were particularly mild or that there had been a spontaneous change in the virulence of the disease. The conclusion was that the "remarkable improvement in the clinical results has been chiefly due to the introduction of treatment with prontosil".[37] This successful chemotherapeutic treatment for puerperil sepsis and other infections is but one of many which can be dated from the 1930s,[38] and which gave doctors invaluable help in saving the lives of women in childbirth. If, as some suggested, medical intervention inadvertently had kept up maternal mortality rates before 1936, it certainly helped to reduce them after that date.

If the Depression did not affect decisively rates of maternal mortality, and if the effect of medical intervention was complex, there is less doubt about the importance for the protection of maternal and infant health of the rapid development of ante-natal and child welfare centres. These centres had been supported generously by the Local Government Board and subsequently by the Ministry of Health since 1914. But only in the 1930s did they reach a majority of mothers in England and Wales. Comparing visits by mothers to the number of registered births in a year can give a good idea of the major change which

[34] Letter of G. I. Strachan, Professor of Obstetrics and Gynaecology, Welsh National School of Medicine, Cardiff, to *Lancet*, 26.1.35.

[35] F. J. Browne, "Antenatal care and maternal mortality", *Lancet*, 2.7.32, p. 3.

[36] *Report of the Inter-departmental Committee on Abortion* (1939).

[37] L. Colebrook and M. Kenny, "Treatment with prontosil of puerperal infections", *Lancet*, 5.12.36, pp. 1319-22. Thanks are due to Dr Fiona Caldicott for this reference.

[38] T. McKeown, *The Modern Rise of Population* (1976), p. 103.

took place in the 1930s. In 1930 only 27% of all expectant mothers whose pregnancies reached full term attended ante-natal clinics. In 1938 the figure had risen to 61%.[39] Corroborating evidence was provided by the reports of 189 local authorities providing maternal and infant welfare services, who told the National Association for the Prevention of Infant Mortality that there had been a substantial increase in the number of visits of pregnant women.[40] In 1935, Sir Kingsley Wood, then Minister of Health, reported similar progress in many areas of public health provision. In the early 1930s, there had been, he noted, a 20% increase in the number of clinics, a 23% rise in the number of women attending them, a 10% increase in the number of maternity beds in hospital, and a 30% increase in the number of women admitted to them. A majority of the clinics employed medical consultants. Four hundred provided milk and/or food free or at cost price, and 133 provided home helps, paid for by the local authority, for women after delivery. The Conservative government's commitment to the extension of maternity services was complete, and, he added, " There had never been any question of their curtailment, even at the height of the financial crisis ".[41]

None of these advances, though, would have had much effect had not women's attitudes to public support for their own welfare altered in the 1930s, such that it became the rule rather than the exception for women to attend antenatal clinics regularly. Infrequent visits to such clinics or the failure to begin antenatal supervision until late in pregnancy rendered useless such facilities to protect maternal health. This was part of the reason, one authority claimed, why the extension of public support for maternity and child care in the first 30 years of this century had not brought about a decline in maternal mortality rates.[42] In the late 1930s, and to an even greater extent during the Second World War the duration and quality of antenatal care was extended and improved. Public campaigns like that in Rochdale were instrumental in bringing about this change. A similar effort in the Rhondda valley in 1934 resulted in a doubling of the number of attendances, during which food was distributed to many undernourished women. There should be little surprise that the maternal mortality rate dropped significantly in that part of South Wales.[43]

A similar indication of the greater willingness of women to seek professional help in childbirth is that between 1932 and 1937 the number of women delivered in institutions rose by 50%.[44] What this meant for maternal welfare can be judged by the examples of Willesden Maternity Hospital, where the

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[39] 12th-20th MH, 1930-38.

[40] " National conference on maternity and child welfare ", *Lancet*, 7.7.34, p. 61.

[41] " A deputation on maternal mortality ", *Lancet*, 27.7.35, p. 231.

[42] BROWNE, " Antenatal care ", p. 4.

[43] " An attack on maternal mortality ", *Lancet*, 6.7.35, p. 50.

[44] " Mothers and children ", *Lancet*, 12.6.37, p. 1431.

maternal mortality rate was 1.02 per 1,000 live and stillbirths in 1937,[45] and of the East End Maternity Hospital, where in the period 1921-28, the maternal mortality rate had been 0.68 per 1,000 births, and where, in the period 1928-35, only 28 deaths had occurred out of 13,500 confinements.[46]

Still, about two-thirds of all women in labour were attended at home by midwives, whose work was also extended and improved in the mid-1930s. The number of midwives practising in England and Wales rose from about 14,500 in 1928 to 19,500 in 1936. In that year a Midwives Act was passed which brought the profession under full public supervision. The Act required local supervising authorities to secure an adequate number of full-time salaried midwives for institutional and domiciliary attendance.[47] Better training and better pay in the 1930s were bound to work to the benefit of the women they helped to deliver. We can conclude, therefore, that there is considerable force in the claim of the Ministry of Health in its annual report for 1938-39 that the drop in maternal mortality was due primarily to a more complete and professional provision of effective ante-natal, obstetrical, and post-natal care.[48]

III Nutrition and Standards of Health

By 1939, the survival chances of mothers and children in Britain had reached all-time high levels, in part as a result of extensions of public health services and their greater and more regular utilization by the female population. What role in this improvement was played by nutrition, the other major variable which affects the outcome of pregnancy and the health of mother and child? There is little reason to doubt that unemployment increased considerably the pressure on working-class nutritional standards in the early 1930s. What is remarkable is that such shortages did not result in a deterioration of infant and maternal health in those areas most deeply affected by industrial decline.

The way that poorer nutrition led at times to increased adult mortality during the Depression was demonstrated in 1933 by Dr. G.C.M. M'Gonigle, the Medical Officer of Health for Stockton-on-Tees. The city's labour force was dependent on shipbuilding, engineering and allied trades, which were particularly hard-hit by the world economic crisis. Over 40% of the male labour force was unemployed for considerable periods of time. Dr. M'Gonigle studied the mortality statistics of about 2,000 people who lived in "an unhealthy" part of the city. The houses in which about one-third of this population lived were condemned, and they were resettled in a housing estate nearby. But surprisingly, this rehoused population suffered a deterioration in adult

[45] "Maternity in Willesden", *Lancet*, 30.1.37, p. 300.
[46] "Progress in maternity and child welfare", *Lancet*, 2.5.36, p. 1042.
[47] 18th MH, 1936-37, p. 7.
[48] 20th MH, 1938-39, p. 35.

mortality, whereas those who still lived in the old tenements did not. The reason, the doctor concluded, was that the higher rents in the new housing estate reduced family incomes below the level at which they could provide adequate nutrition.[49] This paradoxical outcome of urban renewal has been cited as clear-cut evidence of the effect of the Depression on public health.[50] But two important parts of M'Gonigle's study have been missed. The first is that the crude death rate for the slum dwellers who did *not* move declined on average in the years 1928-32. Secondly, *both* the population that moved and those that did not move made impressive gains in infant survival rates in 1928-32.[51] On the basis of the most careful local study of public heath in the period of the Depression, it is impossible to conclude that nutrition was reduced to such an extent that it endangered the health of working-class infants.

The same point emerges from the studies of nutritionists in the 1930s and 1940s. John Boyd Orr, director of the Nutrition Research Laboratory at Aberdeen, reported significant improvements in the diet of the working class in the 1930s.[52] In 1937 he wrote that

> there has been a marked improvement in the national dietary. Compared with the years immediately preceding the war, the consumption of fruit and vegetables has increased by about 75% and of eggs and dairy products by about 50%. Accompanying this improvement in the national dietary, and in my opinion due mainly to that, there has been a remarkable improvement in the health and physique of children.

Of particular importance in the reduction of infant mortality rates, Orr, concluded, was "the better feeding of expectant and nursing mothers"[53] Of course, malnutrition and barely adequate nutrition were the rule in many working-class areas. But on the whole, there is little convincing evidence of increasingly poor nutrition during the Depression or in its aftermath. Two officials of the International Labour Organization remarked in a similar vein that

> It is a striking fact that even in such a town as Jarrow, where distress is very great, the deterioration in health conditions, while obvious, seems to have been smaller than might have been anticipated, especially among the children.

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[49] G. C. M. M'GONIGLE, "Poverty, nutrition, and public health", *Proceedings of the Royal Society of Medicine* (1933), pp. 677-87. See also M'GONIGLE and J. KIRBY, *Poverty and Public Health* (1936).

[50] A. E. BENDER, "Nutritional status of schoolchildren", *Proceedings of the Nutrition Society* (1974), p. 47.

[51] M'GONIGLE, "Poverty", pp. 678-80.

[52] J. BOYD ORR, "National food requirements", in J. C. Drummond *et al.*, *The Nation's Larder and the Housewives' Part Therein* (1940).

[53] ORR, "Nutrition in relation to education, agriculture, and medicine.", *Health and Empire* (1937), p. 197.

They believed that effective social services in schools and parental sacrifice had helped prevent the burden of the Depression from falling on the shoulders of Britain's children.[54] A recent study of the important work done by schools in Glasgow to help relieve distress in the 1930s confirms the first part of this explanation,[55] and there is little reason to deny the likelihood of the second. A similar impression may be gained by an examination of studies of secular changes in the height and weight of London schoolboys between the ages of five and and thirteen. Between the pre-First World War period and 1938, there was a gain in average weight of 3.42 kilogrammes and in average height of 5.62 centimetres.[56] It is possible that without the Depression this improvement would have been greater still. But these data are consistent with the overall argument of this paper that the economic crisis of the 1930s was less disastrous to public heath in Britain that previously has been supposed. In the words of a Chatham House inquiry into unemployment, the Depression's " immediate effect on health statistics is nowhere near so great as the degree of poverty would suggest ".[57]

One reason was that the machinery of social protection in Britain — public health services, child welfare agencies, and even the notorious dole — worked when it mattered, largely because there was a broad consensus of support for measures designed to protect the health of the nation.[58] Because of public provision, medical intervention, and long-term improvements in working-class nutrition, the 1930s must be seen, therefore, despite the stubborn survival of pockets of terrible deprivation, as a period of major improvement of the health of mothers and infants in Britain.

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[54] H. Fuss and D. Christie Tait, " Unemployment benefits and measures for occupying the unemployed in Great Britain ", *International Labour Review* (1933), pp. 609-10.

[55] B. Holton, " The inter-war depression and social welfare on Clydeside, with particular reference to the work of the education authorities ", paper delivered to the Anglo-Dutch Labour History Conference, Amsterdam, April 1974.

[56] J. B. de V. Weir, " The assessment of the growth of schoolchildren with special reference to secular changes ", *British Journal of Nutrition* (1952), pp. 19-33.

[57] *Unemployment. An International Problem* (1935), p. 25. The case of rheumatic fever may be an exception to this statement.

[58] R. P. Lopes, " The economic depression and public health ", *International Labour Review* (1934), pp. 785-98.