REFORMERS, MOTHERS AND BABIES

ASPECTS OF INFANT SURVIVAL

AUSTRALIA

1890 - 1945

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I soon found that it is too late to look for instruments, when the work calls for execution, and that whatever abilities I had brought to my task, with those I must finally perform it. To deliberate whenever I doubted, to enquire whenever I was ignorant, would have protracted the undertaking without end, and, perhaps, without much improvement; for I did not find by my first experiments, that what I had not of my own was easily to be obtained: I saw that one enquiry only gave occasion to another, that book referred to book, that to search was not always to find, and to find was not always to be informed; and that thus to pursue perfection, was, like the first inhabitants of Arcadia, to chase the sun, which, when they had reached the hill where he seemed to rest, was still beheld at the same distance from them.

I then contracted my design, determining to confide in myself, and no longer to solicit auxiliaries, which produced more incumbrance than assistance: by this I obtained at least one advantage, that I set limits to my work, which would in time be ended, though not completed.

Source: Johnson's *Dictionary of the English Language*, vol 1, London, 1819, p.9
This thesis is my own original work, except where otherwise acknowledged.
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This thesis examines the relationships between infant mortality, organised campaigns to reform mothers by education in mothercraft (the infant welfare movement) and mothers' behaviour. It proposes that the movement in Australia did not contribute as powerfully to the decline in infant mortality as its protagonists professed and believed. This conclusion rests on the demonstration of inappropriate relationships in time and space between the putative cause and effect, as recorded in the historiography of infant welfare.

In Australia both fertility and infant mortality fell from the 1880s. The major declines in infant mortality began before the rise of mothercraft institutions; infant mortality went down evenly between the states when the baby health centres spread unevenly; and the prescriptions of infant care responded to, more than they affected, the mortality pattern.

Both the underlying trend and ideas about infant mortality are considered: a 'missionary model' is applied, and the movement is interpreted to have been a missionary movement of intense belief systems. Mothers' practices followed a different chronology from the rules of infant nurture, while how mothers behaved depended on their circumstances.

The infant welfare movement capitalised on the opportunities represented by rapid demographic change. Building on the fertility decline and reduced infant mortality, it helped induce a more intensive attention to babies. The raised standards expected of mothers by 1945 were made possible by improved chances of life and health.
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INTRODUCTION

Maternal care and infant survival offer what may be the best insight into improved life chances over time. Yet, as social history metamorphoses with inquiries about health, the subject has only recently received attention from historians. This thesis investigates the relationships between the transition in the infant mortality rate from the 1880s, organised campaigns to reform mothers by education in mothercraft and what mothers actually did and did not do. It explores the chronological sequence of events and the connections, amid a mosaic of change, between the changing mortality pattern, rules of infant nurture promoted by the infant welfare movement, and mothers' behaviour. A central argument is that the movement capitalised on the opportunities represented by rapid demographic change, on an already fallen and still falling infant mortality rate, and on the decline in fertility which also had its beginnings in the 1880s.

This study pursues at once the convictions and claims of infant health leaders who launched a crusade to save lives, the problems that they perceived in the demographic transition and how these shaped health interventions; and the facts of the transition in infant survival and mothers' and babies' everyday lives, the intricacies of potty training and feeding. These two themes span the public and private realms, the worlds of ideas and reality.

Penelope Hetherington, in her survey of the pathways that ought to be pursued by historians of childhood in Australia, states that demographic analysis should be fundamental and is essential as a basis for linking what she terms the 'changing mode of production', 'ideology' and practices.¹ She is right; and such a perspective is adopted here.

¹Penelope Hetherington, 'Childhood and Youth in Australia', Journal of Australian Studies, no 18, May 1986, pp.3-18
The period chosen is 1890 to 1945. This may appear a late start in the light of the work on the infant mortality decline in the United Kingdom by R.I. Woods, P.A. Watterson and J.H. Woodward, which I shall discuss in the literature review of Chapter 1. They conclude that historians and demographers have overlooked the true origins of the secular fall in infant mortality, which in England dates from the 1880s or 1890s, and that scholars have been misled by the historiography of infant welfare to focus their attention on the twentieth century rather than on the earlier turnaround.2 Given that the history of infant welfare has been found to perpetuate what amounts to a general bias of interpretation that has distorted the chronology of change in improved infant survival, there is a strong case for inspecting the evidence in the period characterised by the fall in the infant death rate and the rise of mothercraft institutions. Indeed, the historian has a particular role to perform in evaluating the bias in the evidence left by historiographically dominant groups: in this case, the infant welfare movement.3

This study does not address systematically the true origins of the historic infant mortality decline; however it does draw attention to them, and 1890 makes a good starting point for elucidation of the transition. In general, it was from this date that infant death rates in western European cultures dropped away. In Australia, the infant mortality rate began to fall in the 1880s, and across the continent from about Federation. The period chosen is significant for the long-term trend in infant mortality and takes into account the short-term fluctuations in the drought years of the late 1890s, when there were epidemics of diarrhoea which brought into sharper

3An example of this approach in another field is James Belich, The New Zealand Wars and the Victorian Interpretation of Racial Conflict, Auckland, 1988 (1st pub 1986)
focus the fall in infant mortality early in the twentieth century. It also encompasses much of the period in which fertility declined. This demographic setting is the subject of Part I. By 1945 the infectious diseases of infancy had retreated and the pattern of infant mortality had been transformed.

After 1890 there arose a concern among reformers with the 'public child' and a public dimension to motherhood. The late nineteenth century was a period of sanitary improvement and of alarm about child abandonment and neglect, when statisticians calculated mortality rates, doctors devised feeding routines and undertook epidemiological research, preparatory to a shift of focus about the turn of the century to the general problem of infant mortality. The dates chosen as markers define the period of timetabled routines of feeding and sleeping, of infant feeding formulae and the movement from environmental to personal health services once infant mortality came to be seen as preventable. Reformers' preoccupations expanded again from 1945, from infant care to all-round child development. The models for infant welfare in Australia have their origins from the 1890s in France, the United States and Britain. The rise of the infant welfare movement's mothercraft institutions, the beliefs of its leaders and the relationships of their regimens to the mortality pattern are considered in Part II.

While the location for this study is Australia, specifically south-eastern Australia, considerable attention is paid to the example of New Zealand and to the influence in this country of Dr Frederic Truby King, the baby health authority of the inter-war period. He claimed, and it was claimed of him, that infant welfare interventions were directly causal in bringing down infant death rates. The messianic missionary flavour which he and his followers imparted to the movement needs to be explored in order to understand the strength of their claims and the conviction that these could
carry with other people. Present-day researchers debate the relative influence of the alleged main contributors to the decline in infant mortality; but health authorities at the time declared that the infant welfare movement was the 'greatest single cause' of reduced infant mortality, and at minimum 'played a major part', and this older dominant interpretation continues to influence preconceptions and the historical record.\(^4\)

It is only by examining the effectiveness of infant welfare interventions that we can make assessments about their relative importance among a range of specific measures and cultural, social and economic changes. What happened to mothers, babies and young children, and what mothers thought about it is considered in Part III. This thesis analyses the arguments of infant health leaders who deemed mothers responsible when infant mortality rates held up, and gave the credit to the infant welfare movement when infant mortality fell. The reformers' perceptions, and the chronological sequence of events, raise questions about the role played by mothers in improving their babies' chances of life.

PART I: TRANSITION
CHAPTER 1
AT A CONFLUENCE OF FIELDS

This thesis is at the point of confluence of a number of discrete fields. The history of European childhood and the family, of public policy and interventions and the movement of ideas in public health, and the multidisciplinary debates about the impact of medicine and standards of living on the mortality decline of the past 200 years, all bear on the subject of infant survival. So do the social histories of medicine and of health and ill-health, with their briefs of society and disease; feminist interpretations of infant welfare as a women's movement and women's work and of the idea and reality of motherhood; studies of theories of child rearing; the sociological literature on the rise of the professions and state agencies to 'modernise', 'police' and 'control' the family; the demographic concern with births and deaths, and lately with health transition. Not all relevant fields and subliteratures can be addressed in this review. Hopefully readers possessed of different assumptions, who would ask other questions to reach other conclusions, will forgive any shortcomings, and what might appear to them to be linguistic oddities in this exercise in humanistic scholarship as they too meet at the crossroads of their fields.

HISTORY OF CHILDHOOD AND THE WESTERN FAMILY

Philippe Ariès' classic work *L'enfant et la vie familiale sous l'Ancien Régime* ('The child and family life under the Old Regime') published in 1960 and in English as *Centuries of Childhood* (1962), is an appropriate place to start because Ariès linked infant mortality with fertility and social change. Impressed by the importance of the child in the demographic 'revolution' in fertility and mortality in the West between the eighteenth and twentieth centuries, he found a gulf between concepts of childhood before this revolution and after. The crucial change of sentiment among adults
towards children, from indifference to 'obsessive love', Ariès placed in the eighteenth century, when family sociability retreated, to be replaced by separate private and public spheres and a child-centred family world. Before this transformation of sentiment and family structure there was a high infant death rate. With this 'new emotional attitude' among the upper classes, however, infant mortality declined. Improved infant survival was balanced by a fall in the birth rate, as privileged parents invested more in fewer children. Ariès' thesis offers opportunities to examine the role of cultural change in the infant mortality transition as he termed the idea of education the 'essential event' that transformed the idea and reality of family life.1

Since Ariès a dominant modernisation tradition has developed in the history of childhood, according to which attitudes to infants and mothers' behaviour changed for the better somewhere between the seventeenth and nineteenth centuries. E. van de Walle and F. van de Walle demonstrate that historians of this school distinguish a two-way relationship between high infant mortality and cruelty or indifference, linked, to use Alan Macfarlane's term, by a 'feedback loop'. Parents allegedly showed equanimity in the face of infant death because it happened often; and this callousness further raised the infant mortality rate.2 Edward Shorter and Lawrence Stone are leading exponents of this view. Both argued that 'good mothering [was] an invention of modernization' and that individualism drove the change of sentiment, though they differed over details as to whether 'market capitalism' or the rise of 'Affective Individualism', fostered by Protestantism, was the key.3

There is much to dispute in the method and argument of the sentiments historians, not least present-mindedness. In a systematic refutation, Linda Pollock has found no dramatic change in childrearing practices in the eighteenth century, and no significant improvement in parental care between 1500 and 1900. 'Instead of trying to explain the supposed changes in the parent-child relationship,' she concluded, 'historians would do well to ponder just why parental care is ... so curiously resistant to change.' Pollock drew from sociobiological theory and anthropology the message that the biological imperatives of human survival dominate over cultural influences.\footnote{Linda A. Pollock, *Forgotten Children: Parent-Child Relations from 1500 to 1900*, Cambridge, 1983, pp.33-43, 51, quotation from p.271} Her argument is supported by the findings of Peter Laslett and historians of family and household structure (Michael Anderson's 'household economics' school), and of E.A. Wrigley and R.S. Schofield that smaller families and nuclear families existed centuries before the Industrial Revolution.\footnote{Useful summaries of sources are contained in Michael Anderson, *Approaches to the History of the Western Family 1500-1914*, London, 1980; Tamara K. Hareven, 'Family History at the Crossroads', *Journal of Family History*, vol 12, nos 1-3, 1987, pp.ix-xxiii. The classic works referred to are Peter Laslett and Richard Wall (eds), *Household and Family in Past Time*, Cambridge, 1972; E.A. Wrigley and R.S. Schofield, *The Population History of England, 1541-1871: A Reconstruction*, Cambridge, MA, 1981}

This raises the question of how much weight to attribute to a transformation in the idea of childhood, in a concern to 'train' a child to be obedient and regular, that Pollock found among seventeenth-century puritans but documented as minor compared with the image of continuity. Pollock disavowed any link between this new attitude, of a heightened time sense, and mothers' behaviour, whereas the dominant interpretation assumes that there was just such a link between deeds and ideas. Further, she assumed that infant mortality rates were constant before 1900 in England and France when her period took her beyond the brink of the worldwide infant mortality decline. The behavioural implications, too, of the fertility
decline in the final quarter of the nineteenth century are not explored.6

The recent revisionism in childhood history has concentrated on demonstrating the obvious point that parents have always loved their children.7 We may agree with Bruce Bellingham that 'indignation at lurid interpretations of ... indifference' is not misplaced, but that Pollock, in this instance, failed to preserve what was good in sentiments history and recognise that according to her own evidence, child rearing practices and conditions of life did change.8 Ariès himself warned not to confuse affection for the young with the idea of childhood.9 Twenty-five years after Ariès, S. Ryan Johansson has used infant mortality data to test Ariès' and Pollock's descriptive 'models', and found evidence to support Ariès in the form of marked falls in infant mortality and fertility among European elites in the seventeenth and eighteenth centuries, although the falls were earlier and closer together than he suggested.10 The lesson is that, while child rearing prescriptions are not the same as practices, demographic testing supports an argument that ideas and beliefs within a particular group or class influence mortality outcomes.

In a cautious reassessment of adult attitudes to infant rearing in seventeenth-century England, Patricia Crawford has exposed gender bias in the record that held mothers responsible for infant mortality.11 The

6Pollock, Forgotten Children, pp.25, 51, 269 and chap 5. Since by her own account infant mortality rates were not as high as claimed in premodern Europe, it would have been useful to have some discussion of the long-term trend. According to Pollock, Ariès himself negated the argument for a relation between infant mortality and the alleged change of attitude by his surprise that the idea of childhood appeared earlier than it should have done, p.25
7van de Walle and van de Walle, 'The Private and the Public Child'
9Ariès, Centuries of Childhood, p.128; van de Walle and van de Walle, 'The Private and the Public Child', pp.4-5
blameworthiness of mothers was the 'leitmotif' of rules of infant nurture since that period. Feminist historians who highlight the significance of separate public and private spheres for the rise of the middle classes and the cult of true womanhood have emphasised how the onus of maternal responsibility grew weightier over the eighteenth and nineteenth centuries, and how, in parallel, increased power accrued to mothers in the domestic sphere. Writing on American motherhood, Nancy Schrom Dye and Daniel Blake Smith document a major transformation in the middle and upper classes from a father-dominated to a mother-dominated affectionate family between 1750 and 1920, in which 'mothers assumed increasingly important responsibilities for the nurturance and moral development of children.'

As beliefs about health changed, so did the idea from about 1800 that good mothering could ensure infant survival. From about 1900, they identify a 'seachange' that combined the realisation that much infant mortality was preventable; and a 'public dimension to motherhood', or 'social maternalism', when mothers made 'high infant mortality a matter of serious public, political concern and called on doctors, public health officials, and the State to take action to reduce the number of infant deaths'.

The recent wisdom in childhood and family history, then, is that over the seventeenth, eighteenth and nineteenth centuries, 'the power structure of the family [was] profoundly transformed .... interest in children became increasingly mother-centered, and the feeling grew that mothers could do something to improve the life chances of their children. The final step in the evolution, however, the step that would lead to a decisive decline of

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13 Nancy Schrom Dye and Daniel Blake Smith, 'Mother Love and Infant Death, 1750-1920', *Journal of American History*, vol 73, no 2, Sep 1986, p.332
mortality, occurred only when the technology became available to actually influence the life chances of the child.'¹⁵ This last stage included the infant welfare movement.

In Australia and New Zealand the triumph of the ideal of the mother as 'Ruler of the Home' from the 1880s is generally accepted. Graeme Davison has observed that: 'it is probably no accident that domestic sentimentalism reached its meridian [in Melbourne] precisely in the high boom years'.¹⁶ There is an opportunity here to invoke Janet McCalman's history of the Australian working class, as 'respectable' clerks and artisans could afford, with rising real wages, that wives devote their talents to a family life characterised by cleanliness, order and regularity.¹⁷

Australasian historians have begun to relate the ideology of separate spheres to the fertility transition, but not to the decline in the infant death rate. Recently, Ann Larson has drawn on McCalman's divide between the 'respectable' and the 'rough' to venture that 'respectability' was fundamental to the fertility decline in Melbourne, as I shall discuss in Chapter 2. Mindful of Patricia Grimshaw's appeal for historians to bring together studies of the Western family and of women in the public sphere, my study attempts to relate family and personal behaviour to the infant mortality transition, as well as to the rise of the infant welfare movement.¹⁸

The fundamental question that childhood history raises is whether the

¹⁵ van de Walle and van de Walle, 'The Private and the Public Child', p.6
¹⁶ Graeme Davison, The Rise and Fall of Marvellous Melbourne, Melbourne, 1978, p.140. This happened 50 years later in immigrant Australia than in England, where by the 1830s and 1840s 'the belief in the natural differences and complementary roles of men and women which had originally been particularly linked to Evangelicalism, had become the common sense of the English middle class.' Leonore Davidoff and Catherine Hall, Family Fortunes: Men and Women of the English Middle Class 1780-1850, London, 1987, p.149
¹⁷ Janet McCalman, Struggletown: Public and Private Life in Richmond 1900-1965, Melbourne, 1984
'public child' - as perceived by the state, the medical profession and infant welfare authorities - or the private child, in the family, was the 'locus of the mortality transition'. Van de Walle and van de Walle attribute the rapid decline from about 1890 to a confluence of elements, of which the view of the child in the 'bourgeois' family was one; they argue that the public child was the locus of the transition in the infant death rate and the recognition of a role for the state was 'a decisive step', because state intervention mobilised advances in medical knowledge. Shorter, on the other hand speculated that the plunge in infant mortality from the late nineteenth century was the result of better maternal care; he proposed, in effect, that the private child was the locus of the mortality transition. My study considers these two positions in Australia, where state intervention was weaker and later than in France, which provided early models of infant welfare, as it was also in the United States, Britain, and to a lesser degree New Zealand.

PUBLIC POLICY AND INTERVENTIONS

Historians of infant mortality and welfare customarily examine not the underlying trend in infant mortality but perceptions of infant mortality as a national problem and how ideas and beliefs influenced health policies. A number have demonstrated that interest in infant mortality soared with the fall in the birth rate and how what had come to be perceived as preventable loss of life heightened the frenzy of pronatalist lobbies. Concern about national efficiency and powerlessness was exaggerated in time of war; the enormous waste of young men's lives in the carnage of the Great War in particular and the grief in its train compounded the fears of racial degeneracy, and gave impetus to the rise of the infant welfare movement.

19van de Walle and van de Walle, 'The Private and the Public Child', pp.23-4
Against this backdrop of panic about natural increase, scholars identify a shift of focus about the turn of the century among progressive social reformers from concern with neglected and abandoned infants, illegitimates and infanticide, to high infant mortality in general, and from palliative to preventive methods of child saving. Contemporaneously ideas in public health moved from environmental sanitation to personal health services which were largely directed at the infant and the mother. Charitable health visiting and the ministry of sanitary reformers came together in the infant welfare movement's 'appeal to saving'.

In his recent study of the replacement of the old public health with its emphasis on water, soil, air, and food by the new public health of the individual, represented by the infants' milk depot and baby health centre, the medical anthropologist David Armstrong has applied to the twentieth century the Foucaultian premise that the body is an effect as well as object of medical inquiry. Under the 'old system' of public health the natural environment was perceived as the source of disease, whereas under the new hygiene the danger arose from people. This interpretation of a transfer of epidemiological 'gaze' from the environment to people and their points of contact, which Armstrong applied to tuberculosis, is here considered in relation to the infant killer, diarrhoea. Armstrong's thesis of extended medical surveillance over children, achieved through the survey, illustrates how the definition of the 'public child' expanded to include all infants.


22Hyslop pinpointed the change in Melbourne's social reform movement between 1890-1900 and 1900-14, in 'The Social Reform Movement in Melbourne'

23The phrase is from Jacques Donzelot, The Policing of Families, New York, 1979, p.xiii

argue that babies had to become and be seen to be healthier first.  

The 'hybrid' of public and private, exemplified by the issue of baby health, is often termed 'the social'; and the public health reforms represented by infant welfare come under the heading of 'social hygiene'. Greta Jones has concluded that the social hygiene of twentieth-century British health reformers was practical social Darwinism.25 In Britain the term refers to the body of ideas where public health and eugenics intersect, and which shaped policies between 1900 and 1939. Elsewhere I have used the term 'eugenics', which contemporaries defined as 'the science of the improvement of the race by better breeding', where it would have been appropriate to use 'social hygiene'.26 Many social hygienists were eugenists, who saw themselves as progressive social reformers.27 But the term 'eugenist' has an association with its harsher hereditarian wing which can be confusing when attempts are made to describe infant health leaders who focused more on environment than on heredity; consequently in this study 'social hygiene' is preferred.

In the United Kingdom, Jane Lewis has examined the impact of these ideas on infant and maternal welfare. The core of her argument is the hiatus between the aims of policy-makers for whom infant and maternal welfare were synonymous with improvements in mortality rates, and the demands of women's groups concerned about wider social problems rooted in poverty. Lewis found that the concept of maternal efficiency, which acquired more of a hereditarian tinge in the 1930s, was attractive to health officials because mothers' habits were thought the key to infant mortality rates, and the role of poverty and sanitation indirect. In her view, the infant welfare movement combined with eugenics 'to move the focus of

25Jones, Social Hygiene in Twentieth Century Britain
27Jones, Social Hygiene in Twentieth Century Britain, p.2
preventive medicine ... towards the individual, from whom more immediate changes could be expected. This thesis extends Lewis's questioning of the movement's effectiveness.

As a rule historians have broached infant welfare from the angle of the ideology of motherhood, observing that reformers believed maternal ignorance responsible for infant mortality and the education of mothers in mothercraft the answer for encouraging self-help. The problem with this approach is that family demography and what happened to babies and mothers are often left out, so that the interventions appear excessively intrusive. My study develops an alternative to a 'social control' interpretation. It builds on the arguments of Christopher Lasch and Erik Olssen, written within a 'control' framework, that the health professionals performed the role of a medical priesthood in their intrusions into the haven of the family, to propose that a 'missionary model' of child saving better explains what infant health leaders were doing and how they saw what they did. Further, it sets the missionary movement within the context of remarkable demographic change.

SOCI OCY AND WOMEN

Sociologists and feminist historians have examined infant welfare as an instrument of social control, as a women's organisation and feminised work. Alisa Klaus, in her comparative study of the infant welfare movement in the United States and France, and Meredith Foley in Sydney

argue that infant welfare was a women's movement. In Australia, as in the United States, women were no mere auxiliaries, unlike the aristocratic women of France, where state intervention was earlier and stronger and the movement led from the start by physicians.31 Foley portrays the movement as a vehicle for educated, professional women to improve women's status as mothers and to find them jobs in the occupations not begrudged them as nurses and in social work, while Jill Matthews places the movement in the history of meanings, as a contributor to the 'historical construction of femininity' in Australia.32

Infant welfare has entered sociological debate as part of the national efficiency movement, as a means to preserve the social order, and as a concerted strategy to win professionals dominance and opportunities. According to Desley Deacon, doctors in early twentieth-century Australia used the rhetoric of 'efficiency' to secure a supervisory role over mothers and thus expand their influence in infant and child care. But her theoretical perspective differs from the large literature on 'social control': she sees infant welfare through the lens of dual labour market theory. Deacon concludes that the rhetoric of maternal ignorance created a stereotype of the incompetent woman which not only furthered the position of doctors in the primary labour market, but helped put up barriers to women's participation in the workforce. In short it worked to keep women at home and in the secondary labour market, that is, at the bottom of the heap.33 In all of this literature, the emphasis remains on the role of ideology and reform and not on the effectiveness of what Lasch termed the 'forces of organised virtue'.34

32Foley, ibid.; Jill Matthews, Good and Mad Women: The Historical Construction of Femininity in Twentieth Century Australia, Sydney, 1984, p.78
34Lasch, Haven in a Heartless World, p.169
Kerreen Reiger does consider mothers. She argues that, in the course of the transition from colonial to 'modern' Australian society, an emergent class of professionals attempted to reform family and domestic life. In the process they undermined the nineteenth-century 'bourgeois' model of the family as a haven from the coldness of the public sphere, and replaced it in the twentieth century with their principles of science and instrumental reason. The infant welfare movement exemplified the invasion of the home by these advocates of 'technical rationality'. There was a fundamental contradiction in the aims of the professionals, who argued that motherhood was women's 'natural' role and yet women had to be taught to be scientific and efficient household managers. The irony for Reiger is that the experts' insistence on the rationality of industrial capitalism confirmed that housework and child rearing were not 'natural' womanly attributes, and thus undermined the grounds for women's inequality.35

At first sight this perspective is extremely helpful because its trifocal lense of feminist, Weberian and critical theory, and structure drawn from Juliet Mitchell's classic book on women's liberation, relate the movement of ideas to the position of women and family change.36 But I see a different world, in which the place occupied by women is pivotal to infant survival. Reiger's experts intrude heavily on the family and how they arose in the path of the late nineteenth-century 'bourgeois' reformers is not explained. This study gives greater weight to the context of demographic transition and to chronology. It puts to a different purpose the contradictions inherent in the infant welfare movement's ideas, which are related to the containment not of women, but of ill-health and disease.

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36Juliet Mitchell declared that liberation required changes in all four of the key structures for women, of production, reproduction, sexuality and socialisation of children, around which Reiger has shaped her book; Mitchell, *Woman's Estate*, USA, 1971, pp.99-121
PRESCRIPTIONS AND PRACTICES

There has been a long debate in sociology and history as to whether prescriptions of how mothers ought to raise their children corresponded with or affected mothers' actual behaviour. In a classic article of advice to historians on advice to mothers, in 1975, Jay Mechling listed four objections to the use of manuals as historical sources: there was some doubt as to the meaning of the advice, whether it was avant garde or embodied current practice; exposure to books depended on a mother's socio-economic status; child rearing behaviour was learned, from one's own parents; and while historians might agree that regimens reflected cultural values, these were the values not of the readers, but of the writers. Rima Apple, in her study of infant feeding in the United States, argues that mothers read and acted on the advice and that infant care practices reflected those in the literature: that 'the prescriptive literature represents, in broad terms, contemporary child-care practices', while in Australia Reiger finds that mothers were more likely to resist if they had support from their own families, but that by the 1930s most bowed to what was 'a definite strategy'. I hold to Mechling's position that prescriptions are not the same as practices and that we have to look elsewhere for evidence of mothers' behaviour.

INFANT FEEDING

Apple, in her study of the transition in the United States from breast to bottle feeding under medical supervision, observes that medical writers blamed high infant mortality on wrong feeding, and shows how physicians used this argument to justify their scientific formulae and to argue that their prescriptions from the 1890s brought infant death rates down. Apple's achievement is to document the takeover by American physicians of infant

37 Jay E. Mechling, 'Advice to Historians on Advice to Mothers', *Journal of Social History*, vol 9, no 1, Fall 1975, pp.44-63
care, but she cannot answer the conundrum of whether the infant mortality rate fell because of or in spite of increased bottle feeding.\textsuperscript{39} Ian Buchanan, however, suggests that infant feeding practices did have an influence on infant diarrhoeal mortality in six English coal mining communities between 1880 and 1911. He argues that the reason lay with a complex interaction between the state of the urban sanitary environment and the method of feeding, and that the house fly was an important infective agent because it transmitted pathogens in excreta to the baby's food.\textsuperscript{40} Buchanan's hypothesis that the life cycle of the house fly gave coherence to the seasonal pattern of diarrhoeal disease is convincing; but there remains a need to go beyond infant feeding in considering possible reasons for the decline in infant mortality.

INFECTION AND MORTALITY

The dominant trend in infant welfare history is for historians to credit the largest part of the decline in infant mortality to the infant welfare movement. On the basis of the Sydney evidence, Milton Lewis concluded that the 'notable decline in mortality from diarrhoeal and associated conditions in Sydney in the early years of this century was not merely coincidental in time with the rise of infant welfare work, but it was, I suggest, causally connected with this factor.'\textsuperscript{41} He warned that 'it would be unwise to exaggerate the contribution of a cleaner milk supply', and that improvements in the city's sanitary environment, while significant, were mediated by improvements in nutrition and domestic hygiene.\textsuperscript{42} In his

\textsuperscript{39}Apple, \textit{Mothers and Medicine}

\textsuperscript{40}Ian Buchanan, 'Infant Feeding, Sanitation and Diarrhoea in Colliery Communities, 1880-1911', in Derek J. Oddy and Derek S. Miller (eds), \textit{Diet and Health in Modern Britain}, London, 1985, pp.148-77

\textsuperscript{41}Milton Lewis, 'Some Infant Health Problems in Sydney, 1880-1939', \textit{JRAHS}, vol 68, pt 1, Jun 1982, p.70; also Lewis, "Populate or Perish", esp. pp.40, 65, 72, 98

account, mothercraft campaigns were instrumental in altering mothers' practices. 'The infant welfare services in other major Australian cities, which began to develop soon after Sydney's,' he added, 'probably also contributed much to the significant reduction of infant mortality, which was a feature of the early part of this century.'

Deborah Dwork, in her study of the infant welfare movement in England between 1898 and 1918, similarly endorses the movement's claims. There is an immediate problem with these interpretations because neither Dwork nor Lewis critically evaluates the dominant body of evidence left by infant health leaders and organisations, that the education of mothers in mothercraft and breast feeding was responsible for the dramatic fall in the infant mortality rate. Neither assesses the movement's actual impact on mothers and babies, nor contemplates the constraints that mothers confronted if they tried to follow the prescribed routines. In short they measure the movement's success in terms of intentions, not of effectiveness.

Moreover, Dwork considers only part of the scientific evidence about infant diarrhoeal disease. She accuses Thomas McKeown and F.B. Smith of ignoring the history of bacteriology and its incorporation in infant welfare, and 'how science informed the (successful) action to reduce infant morbidity and mortality.' But a quick recourse to Smith's work on England and Apple's in the United States reveals another body of medical argument which blamed indigestion for infant diarrhoea. It was this strand of thought, rather than germ theory, which justified timetabled feeding and that milk be modified for bottle feeding. It remains true that the emphasis

44Dwork, War is Good for Babies
45Ibid., p.224
46F.B. Smith, The People's Health 1830-1910, London, 1979, chap 2; Apple, Mothers and
on faecal/oral contamination was the right one, and Dwork consequently highlights this and the movement's battle against the fly as a carrier of disease.

Recently, Sydney thesis writers Victoria Cowden and Jan Kociumbas have concluded from the same evidence as Lewis used that the early infant welfare movement did not noticeably influence the downward trend in infant mortality. This local controversy strengthens the argument for clarification. Was the movement initiated in Sydney an instigator or beneficiary of the downward trend in the infant death rate? Were there peculiarities in the Australian experience that might illuminate relationships between the fall in infant mortality and the rise of mothercraft institutions?

Australian medical authorities have advanced a number of explanations for the decline of infant mortality from the 1880s. J.H.L. Cumpston, writing in the 1920s, attributed the decline largely to sanitation and the development of a 'sanitary conscience'; H.O. Lancaster in the 1950s analysed infant mortality by cause of death but did not discuss reasons for the defeat of infective diseases, though he alluded to social and economic factors; while a decade ago Bryan Gandevia cautioned that there was 'no simple or single answer'. He inclined to the view that altered social circumstances, assisted by medicine, limited the opportunities for microorganisms. Douglas Gordon, however, thought that the most likely explanation for the sudden reduction in infant mortality early in the century in urban and rural areas was a change in virulence of the organism responsible for infant diarrhoea, and declared himself a sceptic about the

*Medicine*

part played by the infant welfare movement. Lately, John Powles has listed as likely contributors, alongside specific public health measures and the promotion of community and personal hygiene, more general influences of better food, spacing of births and literate mothers, and assumed a perspective akin to that of McKeown in placing economic and social changes ahead of deliberate efforts to control disease.

THE MCKEOWN DEBATE

This thesis has some pertinence to the 'McKeown debate' about the impact of clinical medicine, public health and standards of living on the mortality decline in the Western world over the past 200 years. As Professor Thomas McKeown himself observed before he died, in 1988, Malthus set the terms of this debate 200 years ago by suggesting that food supply imposed the ultimate constraint on population growth and death numbers. McKeown, from 1944 the Professor of Social Medicine at the University of Birmingham, took up this idea in the 1950s, and ever since the controversy has set into the framework that he established for analysing the relative roles of better living standards, especially food, and medical interventions in the waning of infectious disease.

In the simplest version of the McKeown thesis, the modern rise of population and the transformation of health in the European and English-speaking world resulted from a fall of mortality from infectious diseases. These subsided mainly for two reasons: raised resistance to disease as a


49John Powles, 'Keeping the Doctor Away', in Verity Burgmann and Jenny Lee (eds), Making a Life: A People's History of Australia since 1788, Ringwood, Vic, 1988, pp.70-84

result of improved living standards, especially better nutrition, and reduced exposure to infection which followed the clean-up of the environment from the late nineteenth century. The impact of medical effort, which McKeown defined narrowly as measures applied to the person in the form of immunisation or treatment, came too late to be effective before 1935, except in the case of smallpox. A change in virulence of the responsible organism explained the fall of deaths from scarlet fever but not the worst killer diseases. The advances in mortality and health were not reversed from the late nineteenth century, because the fertility decline accompanied the improvements in food and hygiene.51

McKeown's argument that the chronology was wrong for clinical medicine to be credited with most of the historic fall in mortality remains unchallenged. What is under assault is his argument by exclusion for food, environment and behaviour, or 'standards of living' generally conceived.52 First McKeown analysed the mortality decline in England and Wales by causes of death before and after 1900, as the necessary prelude to isolating causal factors. In The Modern Rise of Population, in 1976, he conflated his studies of the nineteenth and twentieth century declines, and concluded that the airborne diseases were responsible for 40 per cent and the water and food-borne diseases for 21 per cent of the mortality transition between 1848-54 and 1971. In his analysis intestinal infections were secondary to respiratory disease and the fall in tuberculosis was critical to the grand decline. McKeown proposed that improved nutrition acting on the airborne diseases was the main influence, while reduced exposure was significant in reducing the water and food-borne infections. The efforts of the sanitary

reformers were responsible for perhaps a quarter of the decline, at least between 1848-54 and 1901.\textsuperscript{53} McKeown did not say, but it could be inferred from his logic, that he credited the clean-up of the environment with at least 21 per cent of the decline.

McKeown's method allowed little room for the role of infant mortality. In part this was because the infant death rate in England held up longer than in other countries. McKeown therefore confined his analysis of infant mortality to the twentieth century and estimated that it accounted for one-third of the improved life expectancy between 1901 and 1971.\textsuperscript{54} But his focus on disease types at the expense of age-specific mortality dimmed this finding. The diseases which killed at higher ages, notably tuberculosis, dominated his interpretation, which focused on improved nutrition acting on the airborne diseases, and only secondarily on reduced exposure to gastrointestinal disease which most affected the very young. By McKeown's calculations neither airborne nor water-borne infections but 'other' causes, which included premature births, drove down the infant mortality rate. This 'other', non-infectious category responded both to medical measures and to higher standards of living, which he defined to include better infant feeding and care.\textsuperscript{55} Evidently babies and mothers were important for his argument although from his exposition it is unclear how.

Insofar as he did consider the baby, McKeown appeared to favour infant feeding as the major contributor to the infant mortality decline, through raised resistance and reduced exposure of the artificially fed to


\textsuperscript{54}McKeown, Record and Turner, ibid., Table 1, p.359

\textsuperscript{55}McKeown, Record and Turner, ibid., pp.421-2
microorganisms in contaminated food or milk. He emphasised food hygiene more than quantity as central to improved infant survival.\textsuperscript{56}  

In 1975 McKeown and his associates were hesitant to rank influences on reduced exposure to infantile gastroenteritis, and instead drew up a list that included 'a progressive improvement in milk supplies, particularly the introduction of dried foods for infant feeding and, later, the use of pasteurization; education of mothers in the feeding and care of infants; and more efficient disposal of sewage.'\textsuperscript{57} This list owed something to the classic article by M.W. Beaver on the role of a pathogen-free milk supply in reduced infant mortality. Beaver hypothesised that a safe supply of milk - fresh, condensed or dried - was fundamental to the fall in the infant death rate because it enabled mothers to bottle feed safely. For this reason, clean milk was the 'cornerstone' of the infant welfare movement.\textsuperscript{58} McKeown subsequently abandoned his list, and pronounced in \textit{The Role of Medicine}: 'It is now clear that the provision of a safe milk supply was the main reason for the reduction of deaths from gastro-enteritis and contributed substantially to the fall of infant mortality from 1900'; and in \textit{The Origins of Human Disease} he declared that the fall in both rates offered 'impressive evidence' of the impact of food hygiene, especially on milk.\textsuperscript{59}

There are a number of problems with McKeown's analysis. First, because his scheme neglected the importance of infant mortality for the general mortality decline, his treatment of mechanisms is deficient. It is controversial whether the milk supply was the main reason for the historic fall in the infant death rate. This hypothesis has already been challenged in Australia by Lewis and in Britain by Dwork, and most recently by Woods,\textsuperscript{56,57,58,59}

\begin{footnotes}
\textsuperscript{56}McKeown, \textit{Modern Rise of Population}, pp.121-2, \textit{Origins of Human Disease}, p.84
\textsuperscript{57}McKeown, Record and Turner, 'An Interpretation of the Decline of Mortality in England and Wales during the Twentieth Century', p.417
\textsuperscript{59}McKeown, \textit{Role of Medicine}, p.57, \textit{Origins of Human Disease}, p.84
\end{footnotes}
Watterson and Woodward who reject milk as a 'prime-mover' because underestimates of breast feeding would have exaggerated the effect that cleaner cows' milk could have on reduced infant mortality.\(^6^0\) Second, the rubric of 'living standards' does not explain very much. It implicitly contained everything other than medical therapy, environmental and personal health services - the infant welfare movement included.\(^6^1\) Third, the data throws up problems that affect interpretation and argument, as a change of classification can change the result. Recent quantitative research into the classification of causes of deaths in German infants, to cite one example, has confirmed that 'convulsions' or 'cramps' should be included with the diarrhoeal diseases.\(^6^2\) But McKeown included 'convulsions and teething' in the airborne category, and so understated deaths from gastroenteritis.\(^6^3\)

The revisions of the McKeown thesis have established the central importance of the fall in infant mortality for the overall mortality decline and the lengthening of life and that the role of infant mortality in the demographic transition needs to be restated. Several scholars have observed that McKeown's thesis pays insufficient attention to age-specific mortality; infants died from different causes than adults and from different causes than children at older ages, and the infant mortality rate followed a course

\(^{6^0}\)Dwork, War is Good for Babies, pp.224-5; Lewis, 'Milk, Mothers and Infant Welfare', pp.193, 207; Woods, Watterson and Woodward, 'Causes of Rapid Infant Mortality Decline', pt 1, pp.120-1. On the other hand, Rose Cheney has suggested that a regulated milk supply was one of a number of preventive efforts in Philadelphia that helped drive down infant mortality rates between 1900 and 1920; Cheney, 'Seasonal Aspects of Infant and Childhood Mortality: Philadelphia, 1865-1920', Journal of Interdisciplinary History, vol 14, no 3, Winter 1984, p.585

\(^{6^1}\)Other scholars have noticed the 'catch-all' nature of the living standards argument, among them Caldwell, 'Routes to Low Mortality in Poor Countries'; Simon Szreter, 'The Importance of Social Intervention in Britain's Mortality Decline c.1850-1914: A Re-interpretation of the Role of Public Health', Social History of Medicine, vol 1, no 1, Apr 1988, p.11

\(^{6^2}\)Hallie J. Kintner, 'Classifying Causes of Death during the Late Nineteenth and Early Twentieth Centuries: The Case of German Infant Mortality', Historical Methods, vol 19, no 2, Spring 1986, pp.45-54

\(^{6^3}\)McKeown, Record and Turner, 'An Interpretation of the Decline of Mortality in England and Wales during the Twentieth Century', pp.400, 418
independent of death rates in early childhood. Revisionists have criticised McKeown's use of national death rates, which obscured dramatic regional and local differences. Crucial among these was the urban/rural divide. R.I. Woods and Andrew Hinde underline that urban life chances had to improve before the national death rate could fall. Woods, Watterson and Woodward attribute the urban-rural difference to the 'urban effect', as the increase in English national infant mortality rates in the 1880s and 1890s and the dramatic fall after 1900 both issued from changes in urban conditions. They assume that this 'urban-sanitary-diarrhoeal effect' was environmental, caused by hot weather and filth working together to produce the seasonal peaks in infant mortality that were characteristic of 'summer diarrhoea'. Thus they conclude that public health initiatives, probably not fully felt until the twentieth century, played a vital role in the infant mortality decline, a finding shared by Rose Cheney in her United States study of seasonal infant mortality.

In a full-scale assault on the McKeown thesis Simon Szreter has found using McKeown's own evidence that the 'classic sanitation diseases' were to the fore in the mortality decline between 1850 and 1914. He reached this result in part by transferring some 'convulsions' from the airborne to the water and food-borne disease category and so was able to undermine with

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one swoop McKeown's tuberculosis-and-food thesis. But the revisionists have yet to show that McKeown was wrong to insist that food is the crucial determinant of lowered mortality. As Woods observes about the role of public health, we cannot do much better than 'McKeown's quarter'.

On these points Szreter's charge against McKeown of 'reckless driving', for having belittled the role of public health and overplayed the 'invisible hand' of rising living standards, has gone too far. McKeown chose to remove environmental sanitation from the box labelled 'medical' to the neutral category of reduced exposure because not all reformers were doctors; not all environmental improvements resulted from specific measures, for example streets cleared of dung as the car replaced the horse; and because he wished to separate two classes of influence, one applied to the body and the other to people's physical environment. This is not to say that he ruled out human agency. McKeown's use of the word control over the physical environment suggested a role for human affairs.

A more compelling case is made by Stephen J. Kunitz that mortality declined in Europe and America from the seventeenth century to 1920 as a result of changes in the most prevalent diseases; that these were linked to social and economic changes but were determined by differences in the biology of microorganisms; and that the decline occurred in three broad, overlapping phases, the last being due to the 'pneumonia-diarrhoea complex' in infants and young children. 'Until more is learned from immunogenetic research', he cautions, 'recourse to explanations based upon inherited resistance to infectious diseases would seem to be premature.'

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66Szreter, 'The Importance of Social Intervention in Britain's Mortality Decline', p.16
68McKeown, Record and Turner, 'An Interpretation of the Decline of Mortality in England and Wales during the Twentieth Century', p.416; McKeown, Modern Rise of Population, p.3
What then is an historian to make of the recent revisionism? One purpose of this thesis, to re-emphasise the role of infant mortality in the demographic transition, is met by this school. It is the most recent steps to correct misconceptions about the form of the infant mortality decline and its possible causes, which venture past sanitation into the rubric of living standards, however, which have an immediate bearing on the argument here. In 1989, Woods, Watterson and Woodward find that fertility and women's education could, independently of poverty, reduce infant mortality rates: schooling increased the likelihood that couples would practise family limitation, improved the status of women, 'their access to information', and practices. In short, access to general education altered behaviour. They list as likely triggers of the transition in the infant death rate: 1) the fertility decline, which had an important influence on the fall in infant mortality though lower parity and spacing of births; 2) long-term improvements in the level of women's education; 3) public sanitation or the 'health of towns' movement; and 4) the cluster of policies generally embraced under the head of maternal and infant welfare, which are accorded 'special significance', but as reinforcers of the underlying trend with their attention to babies most at risk in areas of high infant mortality.70

This leap forward in the debate supports the emphases chosen here. Indeed its inspiration in broad terms is the same, that 'the arguments used by demographers who are studying Africa and Asia to-day, especially those relating to fertility and the education of women, are also relevant for Europe and America 100 years ago.'71 McKeown himself, before he died, approved of the recent emphasis in Third World studies on women's education, as

vol 56, no 3, Sep 1984, pp.559-82
71Ibid., p.132
opposed to health education, as a key factor in improved infant and child health. But he did not reach back and apply that insight to the past. It was as if he had been reading the literature on maternal education and child survival too late to alter his general thesis.72

DEMOGRAPHY

Demography provides frameworks of evidence and poses questions for the social historian. My thinking about the relationship of fertility and women's education to the fall in the infant mortality rate and the rise of the baby health movement has been helped by J.C. Caldwell's restatement of demographic transition theory - that the same family changes may have driven down fertility and infant mortality - and associated research into the impact on infant survival of mothers who had been to school; and by F.B. Smith's challenge to historians to probe the influence of fertility on infant mortality.73

Smith is more utilitarian than Caldwell. His emphasis is on parity and spacing. In 1979 he speculated that the halving of average completed family size, spaced children and earlier completion of childbearing affected mortality trends by allowing parents more time and money to spend on their offspring, and by reducing the numbers of older mothers who gave birth to babies with congenital defects.74 More recently Randall Reves has developed a model to demonstrate that the decline in fertility played a major part in the infant mortality decline in England, which supports this view - though he argues that smaller families raised the age of infection.75

In contrast with Smith's concern with practical outcomes, Caldwell

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72McKeown, Origins of Human Disease, pp.186-7
74Smith, ibid.
75Reves, 'Declining Fertility in England and Wales as a Major Cause of the Twentieth Century Decline in Mortality'
invokes psychology. Between 1968 and 1982 Caldwell developed his 'wealth flows' theory of fertility decline, that is also applicable to infant mortality. He posited that wealth flows, economic and cultural, exist between children and parents, and other family members. In a high fertility society, wealth flows from the young to the old, who are the most worthy of respect. For fertility to fall, the direction and magnitude of these inter-generational wealth flows must reverse so that the young become the beneficiaries and the wealth flows to them. High infant mortality, correspondingly, indicates that the wealth flows have not changed direction so that the young are most cherished. Caldwell currently highlights the psychic, more than the economic, component of the wealth flow: the reversal of the emotional or 'venerational' flow from young to old, to old to young, he suggests, is what explains the regularities of timing in the fertility and infant mortality transitions in Western countries. The reversal showed in the simultaneous enactment of child protection legislation and education acts in these countries although their levels of economic development were different.\(^7\text{6}\)

Caldwell has incorporated the sexual division of labour into this softer version of his theory. In the reversal of the wealth flows, maternalism overcame paternalism, as husband and wife grew closer together and the society that produced these companionate marriages became more child-centred. This reversal allowed substantial falls in infant and child mortality.\(^7\text{7}\) Caldwell's theory is consistent with the conclusions of the sentiments historians, updated by feminist scholarship which focusses on separate spheres and domesticity, and by the revisions which recognise that mothers always loved their children.

In his research into infant mortality decline in the contemporary Third

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\(^7\text{6}\) Caldwell, 'Family Change and Demographic Change: The Reversal of the Veneration Flow', Plenary Session Address, American Sociological Conference, New York, Aug-Sep 1986
\(^7\text{7}\) Ibid., p.14
World, Caldwell has found that maternal education is the single strongest influence on infant mortality, greater than levels of income or access to health facilities. His thesis that infant survival improves with the mother's schooling has been confirmed by recent studies.\(^78\) Elaborating on this finding that the more educated is a woman, the more likely she is to take independent action on behalf of her children, Caldwell has come to view women's education as a subset of female autonomy, that is, the woman's freedom of will. In turn, female autonomy is a subset of what he has called 'egalitarianism' and 'radicalism' in Kerala and Sri Lanka, and what other scholars have termed 'individualism', or the rise of capitalism - the focus of the founders of sociology. He posits that the worth of a mother's education for the health of her infants derives not from literacy, but from the self-knowledge which enables her to make her own decisions and for those decisions to be respected by other people.\(^79\) This concept of women's autonomy is appealing, if difficult to test.

The assumption that parents always were fond of their children does not preclude a change of behaviour, a more intensive attention to children as aspirations altered. From Caldwell we may infer that the key change lies with the mother and her own and others' view of herself. But the concept of female autonomy is incomplete. Autonomy itself is an outcome of the formation of identity boundaries, and emphasises separateness, or individualism, when for women the identity clarification that schooling

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79 Caldwell, 'Routes to Low Mortality in Poor Countries', 'Introductory Thoughts on Health Transition', paper, Health Transition Workshop, Canberra, May 1989
enhances is social and emotional and expressed through relationships. Theories of the life cycle, Carol Gilligan has argued, are biased to concern with autonomy and achievement at the expense of attachment and intimacy because they fail to take account of the experience of women; in particular, they miss the significance of the mother-daughter relationship for cultural continuity.\textsuperscript{80} Applying this insight, this thesis hypothesises that Caldwell's demographic transition theory needs to be restated in terms of feminine autonomy as applied to or exercised through attachment. 'Autonomy with attachment' better conveys the idea of self-knowledge expressed by women through their social relations, especially with children, who carried their, and their husbands', hopes for the future.

Demography, too, provides the finding that, from somewhere between 1880 and the turn of the century, infant mortality rates 'dropped like a stone' in European countries from a range of between 400 and 75 deaths per 1000 live births, to a rate today of about 10 per 1000. The decline was linear and there was no going back.\textsuperscript{81} Regrettably Australia lacks the manuscript census returns that would allow a detailed class analysis of the fall in infant mortality comparable to Patricia Watterson's study of the infant mortality decline by father's occupation in England and Wales at the turn of the century, and to Douglas Ewbank's and Sam Preston's survey of infant and child mortality by father's occupation between 1900 and 1930 in the United States. Watterson found that a combination of factors affected the rate and timing of the decline in different social classes but thought that sanitary improvement headed the list.\textsuperscript{82} Correspondingly, Ewbank and Preston find that the biggest drop in infant mortality was among

\textsuperscript{80}Carol Gilligan, 'Woman's Place in Man's Life Cycle', \textit{Harvard Educational Review}, vol 49, no 4, Nov 1979, pp.431, 445

\textsuperscript{81}E. van de Walle, introductory address, Health Transition Workshop, Canberra, May 1989

\textsuperscript{82}Watterson, 'Infant Mortality by Father's Occupation from the 1911 Census of England and Wales'
professional groups. They attribute the faster fall in infant mortality in the cities to sanitation; but after controlling for city size, babies born to fathers in professional occupations still did better - and the difference was not explained by income levels. Thus they find that infant mortality changed in a way that was consistent with a change in mothers' behaviour as well as with sanitary improvements.83

The problem for the social historian is that demographers have used one-sided evidence. Ewbank and Preston acknowledge that it is difficult to establish that behaviour changed, because what mothers did is not quantifiable. So they turn to the medical and public health literature for their evidence in a period of major efforts to change infant nurturing practices. In other words, they rely on the infant welfare movement for evidence that behaviour changed, and in the process imbibe the biases of contemporaries that their efforts in mothercraft changed behaviour.

There are various things that the historian could test in a study of aspects of infant survival. One approach would be to address systematically the relative impact of the main possible contributors to the decline in infant mortality, such as a change in the biological character of pathogens, reduced case fatality from better treatment, nutrition and public health measures. But I am looking at reformers, babies and mothers. This thesis addresses the problem of bias in the record of historiographically dominant groups by critically evaluating the evidence left by the infant welfare movement. Its emphasis is on relationships in space and time between the fall in infant mortality and the rise of mothercraft institutions, on what people believed to be happening as well as what was happening in a period when family demography was transformed.

CHAPTER 2
BIRTH RATE AND INFANT MORTALITY

INFANT MORTALITY DECLINE

Between the 1870s and 1950 infant mortality rates fell remarkably in northern and western Europe. The disparities were vast in levels and trends between and within countries in the final quarter of the nineteenth century. In Europe in the 1870s, infant mortality levels ranged from 450 deaths under one year per 1000 live births in urban Bavaria to 75 per 1000 in the Norwegian countryside. Then, between the 1870s and 1900, infant mortality rates entered a rapid decline. The timing and course of the transition varied geographically. In Sweden and Finland, infant mortality had curved downward since the late eighteenth century, but the fall steepened from the 1870s; in England and Spain, infant mortality rates rose in the 1890s before falling precipitously from 1899-1900; and France showed a decline from 1890. Francine van de Walle has generalised that from about 1890 the fall in infant mortality in most countries, even if it had begun earlier, was 'fast, massive, and irreversible.' The turnaround was clear by 1900 in western Europe, after which infant mortality rates dropped away (the decline came later in eastern Europe). In a common pattern, infant mortality rates halved between the end of the nineteenth century and the 1920s, and again by the late 1940s.

In Australia and New Zealand, the white population shared in this fall; the infant mortality rate itself was a European construct as it was measured

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to exclude Aborigines and Maoris. The experience of the Antipodes and of the United States demonstrates that the decline in infant mortality affected European peoples in and out of Europe. The transition in Australia is plotted alongside those of three countries to which it is culturally similar in Figure 1 (the five-year moving averages are graphed on the log scale to show the underlying trend; the rationale is explained in Appendix 1).

Clearly, aggregate infant mortality rates in Australia and New Zealand were already low in the late nineteenth century, lower than in the United States and Britain. On any comparative table Germany had the worst rates in western Europe; the British Isles, especially Ireland, recorded the lowest rates in Europe outside Scandinavia; and New Zealand and Australia were on a level with the Scandinavian countries. T.A. Coghlan, New South Wales's Government Statistician from 1885 to 1904, drew up a table of ranking by infant mortality rate at the turn of the century to show the favourable position of babies born in Australasia compared with the infant death rates obtaining in the 'Old World' countries of Europe. His findings are reordered below, as Table 1.

Table 1  Mean Infant Mortality Rates in Selected Countries, 1891-1900

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<thead>
<tr>
<th>Country</th>
<th>Deaths under 1 year per 1000 Live Births</th>
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<tr>
<td>New Zealand</td>
<td>83</td>
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<td>Norway</td>
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<td>Ireland</td>
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</tr>
<tr>
<td>England and Wales</td>
<td>146</td>
</tr>
<tr>
<td>Switzerland</td>
<td>150</td>
</tr>
<tr>
<td>Belgium</td>
<td>163</td>
</tr>
<tr>
<td>France</td>
<td>168</td>
</tr>
<tr>
<td>Holland</td>
<td>174</td>
</tr>
<tr>
<td>Italy</td>
<td>190</td>
</tr>
<tr>
<td>Prussia</td>
<td>207</td>
</tr>
<tr>
<td>Austria</td>
<td>247</td>
</tr>
<tr>
<td>Hungary</td>
<td>255</td>
</tr>
<tr>
<td>Bavaria</td>
<td>279</td>
</tr>
<tr>
<td>Saxony</td>
<td>282</td>
</tr>
</tbody>
</table>

Figure 1  Infant Mortality in England and the United States, Australia and New Zealand, 1870-1950

A. England and Wales

B. Massachusetts vs. whole U.S.
Figure 1 (continued)

C. Australia

\[
\text{Infant Mortality Rate / 1000 live births}
\]

\[
\text{Annual Rate}
\]

\[
\text{5 Year Moving Average}
\]

plotted on the log scale

D. New Zealand

\[
\text{Infant Mortality Rate / 1000 live births}
\]

\[
\text{Annual Rate}
\]

\[
\text{5 Year Moving Average}
\]

plotted on the log scale

Source: Appendix 2
New Zealand possessed the lowest infant mortality rate in the world until surpassed by Sweden in 1950. For much of the period 1890s-1945 Australia shared second place with Norway, Sweden, and from the 1920s, the Netherlands (see Appendix 3).

In Australia the infant mortality rate had begun to decline in the 1880s from a level above 120 deaths under one year per 1000 live births, but it rose again to about 110 after 1895. For the continent as a whole, a turning point came about the time of Federation; the Australian infant mortality rate dropped to below 70 by the second decade of this century. Observing this gradual decline from the 1880s, and 'precipitous decrease' in the first decade of the twentieth century, Professor Douglas Gordon thought that there were 'two apparently separate phenomena' affecting infant mortality which had to be explained. Gordon's interpretation of separate phenomena was influenced by the rise in the infant mortality rate in the 1890s that exaggerated the fall after 1900, as Figure 1 shows. We need to discover, as Woods, Watterson and Woodward observe for England and Wales, not only the causes of the decline, 'but also the reasons for the rise before the fall, since the former has put the latter into such sharp focus.'

The infant mortality turnaround in New Zealand came earlier than in Australia, from the beginning of published statistics in the 1870s. There, the infant death rate declined from above 100 in the late 1870s to about 80 in the 1890s, and fell to about 50 by the Great War. In Australia and New Zealand, the greater rate of change in the infant mortality rate coincided with the 'epidemiologic transition' when epidemic peaks disappeared from the

---

3John Powles gives a similar description of the underlying trend, in 'Keeping the Doctor Away', in Verity Burgmann and Jenny Lee (eds), Making a Life: A People's History of Australia since 1788, pp.74-5
4Gordon, Health, Sickness, and Society, p.188
5Woods, Watterson and Woodward, 'Causes of Rapid Infant Mortality Decline', pt 1, p.348
annual infant mortality rates as the gut and respiratory infections that killed infants retreated.6

The wide differences in levels and trends of infant mortality before 1900, between and within countries, were manifest in Australia in disparities between the states (Figure 2). In the 1870s, South Australia and Queensland recorded the highest rates of infant mortality and Tasmania the lowest. Infant mortality fell first in Queensland and South Australia, from the 1870s, as in New Zealand. Queensland experienced a notable decline in the 1880s, and a rise in the drought years of 1895 to 1903 before the rate turned downwards early in the twentieth century. Infant mortality in South Australia, too, registered a sharp decline in the 1880s and a still steeper rise in the 1890s, which exaggerated the downturn in the infant mortality rate after Federation. In Tasmania, the beginnings of decline became apparent in the 1880s and there was a linear fall after 1900. Infant mortality in Victoria followed a different course at first: it worsened rather than improved in the 1880s, and fell after 1890. In New South Wales, infant mortality showed a slight decline from the 1880s to the 1890s and then a sharp fall, as in Queensland. In Western Australia infant mortality moved in the opposite direction from the other states in the late nineteenth century; after fluctuating wildly, it soared in the late 1890s with the discovery of gold.7

My focus is the turnaround in the infant mortality rate experienced by all the Australian states after 1900, because this is pertinent to my review of

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6A.R. Omran coined the term 'epidemiologic transition' in 1971, to describe 'long-term changes in patterns of morbidity, disability and causes of death that have been observed in populations as they experience transformation in their demographic, economic and social structure.' Lado Ruzicka and Penny Kane, 'Health Transition: The Course of Morbidity and Mortality', paper, Health Transition Workshop, Canberra, May 1989. The original source is Omran, 'The Epidemiologic Transition: A Theory of the Epidemiology of Population Change', Milbank Memorial Fund Quarterly, vol 49, no 4, 1971

Figure 2  Infant Mortality, Australian States, 1870-1950

A. New South Wales

B. Victoria

Annual Rate
5 Year Moving Average
plotted on the log scale
Figure 2 (continued)

C. Queensland

D. South Australia
Figure 2 (continued)

E. Western Australia

F. Tasmania

Source: CBS, Demography Bulletins
the role of the infant welfare movement. The significance of the rise in the 1890s must be taken into account because this made the drop early in the twentieth century appear steeper. The entire continent recorded a deteriorating infant mortality rate in the years of the great depression and Australia's worst drought in the 1890s; and more strikingly, the states shared the common experience of a general fall in infant mortality. By the Great War the wide differences between the states had all but disappeared. This suggests a new chronology that brings into question the older interpretation that the infant welfare movement contributed largely to the decline: the major changes in the infant mortality regime took place before the rise of mothercraft institutions.

The significance of the fall in the infant death rate can be gauged from the numbers of new lives formerly lost. At the turn of the century, in a period when fertility and infant mortality were already falling, more than 10000 deaths among babies less than 12 months old (excluding Aborigines) were registered every year, 10666 in 1901, 11012 in 1902, 10963 in 1903, in a recorded population of 3.8 million. The official annual total had been above 10000 for the previous 20 years. As Gordon noted, it dropped below this number in 1904, when there were 8513 deaths. Struck by this sudden decrease, Gordon ruled out the possibility of a change in death statistics and concluded that there had been a real epidemiological change, so significant as to result 'in a reduction of all deaths by 5-6 per cent in 1 year'. After the 1890s there was no looking back. The absolute number of infant deaths more than halved by 1945, to 4700, in a population which had doubled to 7.5 million.

This decline considerably influenced the changing pattern of mortality. In 1900 infant mortality contributed one-quarter, and mortality in children

8Gordon, *Health, Sickness, and Society*, p.189
under five one-third of all deaths. In 1901-10, 20 per cent of all deaths were in infants, as Table 2 shows. The age distribution of mortality weighed still more heavily on babies in the late nineteenth century. Dr Philip E. Muskett, of Sydney, a writer of popular manuals, calculated that one-third of deaths registered in Australia and New Zealand between 1884 and 1905 were in children under two. Already, as F.B. Smith has described for Britain, the 'great transition' was under way from the 'age-old pattern of mass morbidity and mortality' from 'infectious diseases, poor nutrition and heavy labour' to the contemporary pattern where death is primarily associated with old age. Smith has stressed the importance of infant mortality for this transition, and for the dramatic improvement in life expectancies that accompanied it. By the 1930s in Australia, the contribution of infant mortality to all deaths had fallen to seven per cent, less than a third of what it had been in 1900 (Table 2). The period from the 1880s to the 1930s was in Australia and New Zealand, as in European countries, one of great demographic changes in which the decline in infant mortality played a central role. But in Australia the improvement in life expectancies was more regular than in England and Wales, increasing about four years every decade from the 1880s to the 1930s, without the leap forward between 1901 and 1911 in England that Woods and Hinde also attribute to the infant mortality decline.

10Calculated from T.A. Coghlan, The Wealth and Progress of New South Wales, 1900-1, pp.999, 1009
14See Woods and Hinde, 'Mortality in Victorian England', pp.38-9, and more generally the discussion of the McKeown debate in chap 1. Life expectancy at birth in Australia is graphed in Vamplew (ed), Australians: Historical Statistics, p.60
Table 2  Proportion of Deaths in Infancy, Early Childhood and Old Age, Australia, 1901-1950

<table>
<thead>
<tr>
<th>Years</th>
<th>Under 1 %</th>
<th>1-4 %</th>
<th>65 and over %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1901-10</td>
<td>20.51</td>
<td>6.45</td>
<td>28.26</td>
</tr>
<tr>
<td>1911-20</td>
<td>16.66</td>
<td>6.09</td>
<td>30.68</td>
</tr>
<tr>
<td>1921-30</td>
<td>13.10</td>
<td>4.51</td>
<td>36.53</td>
</tr>
<tr>
<td>1931-40</td>
<td>7.40</td>
<td>2.56</td>
<td>47.92</td>
</tr>
<tr>
<td>1941-50</td>
<td>6.79</td>
<td>1.71</td>
<td>54.84</td>
</tr>
</tbody>
</table>

Source: Commonwealth Year Book, 1953, p.614

THE CLOSING DIFFERENTIALS

Of infants who did not live to see their first birthday, approximately one-third died in their first month of life, mainly from congenital defects and prematurity (which was probably a label for low birth weight), and two-thirds between the age of one and 12 months, mainly from bowel infections. Post-neonatal and neonatal death rates in the period 1900-1945 demonstrate that it is a fall in post-neonatal mortality that has to be explained, at least until the 1920s (Table 3). Death rates also differed by sex; the mortality rates of boy babies were higher than those of girl babies and remained so through the transition. But the comparative advantage of girls in the contest to stay alive had narrowed by 1945, which suggests that boy babies were proportionately greater beneficiaries of the turnaround in the infant mortality rate (Appendix 4).

Regional and local differences are important components of the decline in infant mortality. Foremost among these is the urban-rural difference. Proportionately more babies died in the cities, in Australia as in other countries about the turn of the century. In Sydney in 1886-91, babies less than 12 months old contributed one-third of the total mortality, while in late nineteenth-century Melbourne towards one half of deaths were regularly in
children under two.\textsuperscript{15} In part this was a result of the age structure of the population. But it was also a product of the 'urban effect', which was strong in the two metropolises, whereby infants born into micro-organism-laden, growing urban environments polluted by human and animal waste succumbed to diarrhoeal disease.

Table 3  
Neonatal and Post-Neonatal Mortality  
Australia, 1901-1945  
Rates per 1000 Live Births  

<table>
<thead>
<tr>
<th>Period</th>
<th>N.S.W.</th>
<th>Victoria</th>
<th>Queensland</th>
<th>South Aust.</th>
<th>Western Aust.</th>
<th>Tasmania</th>
<th>Australia</th>
</tr>
</thead>
<tbody>
<tr>
<td>1901-5</td>
<td>63.91</td>
<td>61.42</td>
<td>62.22</td>
<td>55.97</td>
<td>87.70</td>
<td>56.46</td>
<td>63.45</td>
</tr>
<tr>
<td>1906-10</td>
<td>45.83</td>
<td>47.45</td>
<td>40.40</td>
<td>41.55</td>
<td>59.06</td>
<td>54.01</td>
<td>46.51</td>
</tr>
<tr>
<td>1911-15</td>
<td>39.30</td>
<td>39.16</td>
<td>34.95</td>
<td>38.19</td>
<td>41.56</td>
<td>38.23</td>
<td>38.63</td>
</tr>
<tr>
<td>1916-20</td>
<td>32.70</td>
<td>33.61</td>
<td>33.42</td>
<td>32.50</td>
<td>32.30</td>
<td>32.36</td>
<td>32.97</td>
</tr>
<tr>
<td>1926-30</td>
<td>25.11</td>
<td>22.59</td>
<td>19.75</td>
<td>20.11</td>
<td>24.17</td>
<td>20.25</td>
<td>23.03</td>
</tr>
<tr>
<td>1936-40</td>
<td>13.55</td>
<td>11.69</td>
<td>10.60</td>
<td>11.46</td>
<td>17.08</td>
<td>11.67</td>
<td>12.62</td>
</tr>
<tr>
<td>1941-5</td>
<td>11.77</td>
<td>10.33</td>
<td>10.14</td>
<td>12.34</td>
<td>12.77</td>
<td>12.30</td>
<td>11.27</td>
</tr>
</tbody>
</table>

Neonatal : under 1 month

<table>
<thead>
<tr>
<th>Period</th>
<th>N.S.W.</th>
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<th>Queensland</th>
<th>South Aust.</th>
<th>Western Aust.</th>
<th>Tasmania</th>
<th>Australia</th>
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</thead>
<tbody>
<tr>
<td>1901-5</td>
<td>33.11</td>
<td>34.49</td>
<td>32.13</td>
<td>30.73</td>
<td>37.09</td>
<td>33.54</td>
<td>33.46</td>
</tr>
<tr>
<td>1906-10</td>
<td>31.47</td>
<td>32.45</td>
<td>30.87</td>
<td>26.83</td>
<td>30.74</td>
<td>29.17</td>
<td>31.10</td>
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<td>1911-15</td>
<td>31.75</td>
<td>33.07</td>
<td>30.73</td>
<td>29.07</td>
<td>30.87</td>
<td>32.68</td>
<td>31.69</td>
</tr>
<tr>
<td>1916-20</td>
<td>32.12</td>
<td>33.57</td>
<td>29.62</td>
<td>29.43</td>
<td>29.43</td>
<td>31.48</td>
<td>31.70</td>
</tr>
<tr>
<td>1921-5</td>
<td>29.97</td>
<td>32.19</td>
<td>27.44</td>
<td>27.83</td>
<td>27.56</td>
<td>31.73</td>
<td>29.91</td>
</tr>
<tr>
<td>1926-30</td>
<td>29.63</td>
<td>29.75</td>
<td>27.66</td>
<td>26.84</td>
<td>25.10</td>
<td>33.12</td>
<td>28.96</td>
</tr>
<tr>
<td>1931-5</td>
<td>27.62</td>
<td>27.78</td>
<td>27.91</td>
<td>22.99</td>
<td>25.11</td>
<td>30.09</td>
<td>27.27</td>
</tr>
<tr>
<td>1941-5</td>
<td>24.52</td>
<td>24.40</td>
<td>24.41</td>
<td>20.86</td>
<td>20.60</td>
<td>27.24</td>
<td>23.97</td>
</tr>
</tbody>
</table>

Source: Commonwealth Year Book, 1951, p.618

The turnaround in the capitals dated from the late nineteenth century, from the 1880s in Sydney and from 1890 in Melbourne, in contrast and in

\textsuperscript{15}Muskett, An Australian Appeal, Sydney, 1892, p.10; Bernard Barrett, The Inner Suburbs: The Evolution of an Industrial Area, Melbourne, 1971, p.133; Ann Larson, 'Childhood Mortality in Late Nineteenth-Century Melbourne', seminar paper, ANU, 9 Jul 1987
parallel respectively with the colony-wide averages to which they contributed. Two things may be inferred from Figure 3: first, that urban infant mortality had to improve for the national infant mortality rate to fall, and second that infant mortality outside the metropolis checked the fall in the overall Australian rate between 1880 and 1900. Non-metropolitan Victoria and New South Wales did not share in the transition in the infant mortality rate until the widespread fall from about Federation. As Lewis and MacLeod demonstrate, moreover, until about 1890 Australian cities recorded rates as bad as in London. It was the low level of infant mortality in rural areas which kept the Australian infant death rate compatible with rates in Scandinavian countries. After the turn of the century rates for city and country converged, the differential closing between Sydney and the rest of New South Wales in the late 1920s but not between the remainder of Victoria and Melbourne until the early 1940s. This closing and reversal of the urban-rural difference was consistent with worldwide trends.

Other capital cities, little more than country towns in 1900, showed the same 'urban effect' and the reversal of the urban-rural difference, on average in the late 1930s, that accompanied the infant mortality decline. Gordon's estimates of the infant mortality rate of Brisbane reveal that the ten-year average rate halved there between 1876-85 and 1906-15, from 180 to 90 (at a time when the municipality grew from 20000 to 120000) while on the Darling Downs infant mortality fell by 40 per cent from 106 to 63. The same pattern existed in Adelaide, where - to supplement the rates for five-year periods reported in Table 4 - T.L. Stevenson has calculated infant

17Reproduced by Lewis and MacLeod, 'A Workingman's Paradise?', p.398 and in Vamplew (ed), Australians: Historical Statistics, p.325
Figure 3  Infant Mortality Rates, Melbourne and the rest of Victoria, and Sydney and the rest of New South Wales, 1880-1950

Rates are given as 5-year averages (as in Table 4)

A. Melbourne and rest of Victoria

B. Sydney and rest of New South Wales

Source: Table 4
Table 4

Infant Mortality, Metropolis and rest of State
New South Wales, Victoria and South Australia
1880-1950

Rates per 1000 Live Births

<table>
<thead>
<tr>
<th></th>
<th>New South Wales</th>
<th>Victoria</th>
<th>South Australia</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sydney</td>
<td>Country</td>
<td>State</td>
</tr>
<tr>
<td>1880-4</td>
<td>174.0</td>
<td>94.9</td>
<td>120.4</td>
</tr>
<tr>
<td>1885-9</td>
<td>164.6</td>
<td>95.2</td>
<td>120.0</td>
</tr>
<tr>
<td>1890-4</td>
<td>138.8</td>
<td>95.8</td>
<td>110.7</td>
</tr>
<tr>
<td>1895-9</td>
<td>134.4</td>
<td>103.7</td>
<td>113.9</td>
</tr>
<tr>
<td>1900-4</td>
<td>111.2</td>
<td>96.9</td>
<td>101.7</td>
</tr>
<tr>
<td>1905-9</td>
<td>86.7</td>
<td>74.5</td>
<td>78.7</td>
</tr>
<tr>
<td>1910-14</td>
<td>75.2</td>
<td>72.1</td>
<td>72.7</td>
</tr>
<tr>
<td>1915-19</td>
<td>68.5</td>
<td>62.6</td>
<td>64.9</td>
</tr>
<tr>
<td>1920-4</td>
<td>63.3</td>
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</tr>
<tr>
<td>1925-9</td>
<td>(a) 53.1</td>
<td>(a) 54.8</td>
<td>(a) 54.1</td>
</tr>
<tr>
<td>1930-4</td>
<td>(a) 40.1</td>
<td>(a) 43.1</td>
<td>(a) 41.9</td>
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<tr>
<td>1935-9</td>
<td>(a) 38.2</td>
<td>(a) 43.1</td>
<td>(a) 41.2</td>
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<td>1940-4</td>
<td>(a) 32.5</td>
<td>(a) 38.9</td>
<td>(a) 35.9</td>
</tr>
<tr>
<td>1946-50</td>
<td>25.8</td>
<td>31.4</td>
<td>28.9</td>
</tr>
</tbody>
</table>

(a) 1927-30, 1931-5, 1936-40, and 1941-5 respectively

mortality rates in Adelaide city that were considerably higher than for the rest of South Australia in the late nineteenth century, of 189 for boys and 171 for girls in 1881, and 144 for boys and 135 for girls in 1901. Rates were high, but not as high, in Hobart; the urban decline from the 1880s dictated the trend for Tasmania, but the infant mortality rate recorded for this town of 35000 remained at 1.4 times the state average in the late nineteenth century. Infant mortality was worst in Perth, soaring above 200 deaths per 1000 live births in the epidemic years 1873-4 and 1896-7. I am dependent here on the calculations of Michael Durey, who found a high infant mortality rate even before the rapid increase in population in the 1890s, and noted that the peak in Perth came at a time of 'urban crisis', at the height of the gold rush in Western Australia, after which infant mortality fell precipitously in the first decade of the twentieth century.

Beyond the cities, infant mortality was lowest in all states along the sea-coast and highest in the red interior with its extremes of distance, heat and cold, dust, flies and water shortages. It was worst in New South Wales in the remote mining town of Broken Hill, in Victoria in the Mallee, and it was lowest along the coast, in New South Wales at Grafton and in Gippsland in Victoria. (Regional differences in New South Wales from the 1890s to 1918 are given in Table 10.) Infant mortality was especially high in gold and coal mining districts, such as the gold towns of Western Australia. Metropolitan and non-metropolitan averages, while useful in exposing a fundamental urban-rural difference, disguise the high infant mortality in provincial centres, which like the metropolis suffered from the 'urban effect' but did not show a decline in infant mortality until after 1900.

18T.L. Stevenson, 'Light and Living Conditions: Mortality in Nineteenth Century Adelaide', paper, ANZAAS, Jan 1979, Table XI
19Deduced from Statistics of Tasmania, 1901, p.129
21Cumpston and McCallum, History of the Intestinal Infections, pp.208-12
Within the metropolises averages obscured the differences between rich and poor. Of particular importance are the extremes of health and ill-health that separated the poorest working-class from the spacious, hillside or harbour view suburb. In Melbourne early this century the 16-feet wide terrace houses in Fitzroy regularly produced an infant mortality rate three times that of the comfortable villas of Kew, a disparity similarly found in Sydney; Erskineville, home of Sydney's railway workers, in 1903 recorded the highest rate of 182 per 1000 live births, nearly five times that in the harbourside suburb of Mosman, of 38 per 1000.22

Indeed, it appears that in the aftermath of the clean-up of the urban environment in Melbourne in the 1890s, socio-economic differences increased. Ann Larson's research in progress on the metropolitan declines suggests that all Melbourne suburbs registered improved infant survival in the late nineteenth century, but that the greatest beneficiaries were the working-class and artisan areas to the north and west, and the affluent south-eastern suburbs which had achieved infant mortality rates by 1895 that brought them in line with the rest of Victoria. Not so lucky were the low-lying inner suburbs, of which the City of Melbourne and Collingwood showed the smallest percentage decrease in infant mortality rates. Larson strengthens this finding of a class difference that can be geographically mapped with an analysis of babies' survival chances by the occupation of the father; better chances always were statistically significant in the wealthy south and east, but by 1900 occupational differences had become significant in the north and west where the middle classes had gained an edge over the semi-skilled and labouring classes.23 These Australian results are

compatible with the widened gap between the wealthy and the rest that Watterson has found in England by 1895, once infant mortality had begun to fall, and that Ewbank and Preston have traced in the United States between 1900 and 1930.24

Social class, then, had a strong influence on the level of infant mortality, although it does not appear to have influenced the timing of the turnaround in Melbourne. All of these authors, consistent with the revisions to the McKeown thesis, argue that sanitation played a large part in the decline. I shall discuss the significance of sanitary improvements in Chapter 3.

More notorious in the eyes of contemporaries than the difference between rich and poor was the contrast between illegitimate and legitimate infant death rates. These two differentials were about the same at the turn of the century, but the extra dangers that confronted the illegitimate baby diminished more rapidly between the 1890s and 1945 than the dangers of spending the first year of life poor. Within fifty years, the death rate of babies born outside marriage plummeted from 180 per cent to 50 per cent more than the rate among babies whose parents were married. This change is depicted for New South Wales in Figure 4. Again the excess over the nuptial rate, and its diminution, suggest that more than economic variables were at work in endangering the illegitimate and in propelling rates down. It seems likely that greater family and social support for the mothers contributed to the decline.

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FERTILITY DECLINE

This transformation of life chances is a part of the demographic transition and thus fits together with the decline in fertility. The 'demographic transition' is defined to comprise the transition from high to low fertility and mortality, but hitherto demographers have concentrated mostly on fertility.25 The term 'health transition', a larger concept that involves changes in fertility, mortality and their perceived causes, has lately begun to replace 'demographic transition'.26 As defined by Caldwell, it includes the social and behavioural changes that have affected health whether or not those changes occurred with that end in view.27 The

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25Ruzicka and Caldwell, *The End of Demographic Transition in Australia*, is an example
26The Health Transition Workshop, 'Cultural, Social and Behavioural Determinants of Health: What is the Evidence?', Canberra, May 1989, discussed this issue. Relevant papers are listed in the bibliography. See also chap 1
27John C. Caldwell, 'Introductory Thoughts on Health Transition', paper, Health Transition Workshop, Canberra, May 1989, p.1
demographers Alberto Palloni and John Cleland agree that enhanced control of reproduction and health have a shared background and that reproductive patterns were crucial to the fall in infant mortality, yet research has pursued independent pathways. Most of the reasons for keeping fertility and mortality studies apart, Joseph E. Potter adds, 'are not "good reasons", and ... there is considerable overlap and complementarity between them.'28 My argument is in accord with these new perspectives.

Much of the fall in infant mortality occurred in those periods in which fertility fell, from the 1880s to the 1930s. Demographers are in general agreement about the timing of the fertility transition: Australian couples had begun to limit their families since at least the 1880s.29 'If', as Ruzicka and Caldwell have written, 'we understand by fertility decline the changes in reproductive behaviour, the Ig index [Princeton index of marital fertility] is probably the most adequate measure of it.'30 Marital fertility is the most appropriate measure to use in this instance because it rules out the effect of changes in proportions of married people, that is, of marriage patterns. The marital fertility index Ig for 1861-1936 in Australia and New Zealand is depicted in Figure 5. This shows the decline in marital fertility in Australia from the 1880s and from the 1870s in New Zealand. Infant mortality was also falling from the 1880s in Australia and from the 1870s in New Zealand. It is probable that the beginning of widespread family limitation and spacing of births was influenced by when depression hit the two countries, though fertility in marriage began to decline in Australia before the economic

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28Alberto Palloni, John Cleland, opening addresses, and Joseph E. Potter, 'Parallels between the Health Transition and the Fertility Transition', paper, Health Transition Workshop, p.2
The important point for my thesis is that marital fertility had dropped by a third by the first decade of the twentieth century and thus by the time of the general fall in infant mortality across the Australian continent.

Figure 5 Marital Fertility Decline
Australia and New Zealand, 1861-1936

Ig is a weighted index of marital fertility developed by Ansley J. Coale, where the weights are age-specific marital fertility rates among Hutterite women. It represents a proportion of maximum observed fertility, as measured among the Hutterites. Thus the indices for a given year indicate the deviation from 'natural' fertility in that period. Further details are given in Appendix 5.


In Australia, the average completed family size of married women declined from an estimated seven children to women born in the 1840s to

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31 Ruzicka and Caldwell, 'Fertility', p.203
4.2 among women born in the 1870s, and to 2.6 children to those born between 1903 and 1908, as fertility control became more widespread and assured. Marital fertility halved between the 1880s and the 1920s. The average completed size of the non-Aboriginal Australian family more than halved in just two generations.

More than birth numbers are necessary to elucidate the contribution of this fundamental change to the rise of the infant welfare movement, to mothers' behaviour and to infant survival. We should try to identify the innovators, and Australian evidence shows that middle-class and skilled working-class people were the first to start contracepting. Ruzicka and Caldwell, from their analysis of the occupations of husbands, concurred with Elsie F. Jones that professionals began limiting their families first, followed by those in commerce, while transport and farm workers, the poorer and less educated, lagged behind. Recent research by Larson on the experience of wives corroborates these findings, although Larson found in Melbourne that young, as opposed to older, women married to men in middle-class and artisan occupations were the leaders of the transition.

If there were an association between the general turnaround in infant mortality from Federation and the fertility decline, this would require evidence for the practice of family limitation by semi-skilled and unskilled working-class people. Caldwell thought that there was a five-year time lag between the adoption of fertility control by the transition leaders and the less well off, but it would be useful to know more about working-class fertility in Australia. Larson found that the semi-skilled and labouring classes in Melbourne did not appear to space their children before 1900; Ellen McEwen

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32Ruzicka and Caldwell, The End of Demographic Transition in Australia, p.26; Vamplew (ed), Australians: Historical Statistics, p.42, is a useful summary source; see also Appendix 5
34Larson, 'Growing Up in Melbourne', chap 5
35Caldwell, Theory of Fertility Decline, p.191
found that miners' wives in Newcastle were starting to limit their families in the 1890s; and Patricia Grimshaw and Charles Fahey report from their series of case studies of the transition that women in the rural Victorian town of Castlemaine, who were born in 1891 and married on average in the Great War, showed smaller completed family sizes and lengths of childbearing than women in earlier cohorts. On the basis of these results, we can do no more than speculate that the working-class fertility transition had begun by the turn of the century.

Medical and police witnesses who gave evidence in 1903-4 before the Royal Commission on the Decline of the Birth Rate in New South Wales certainly thought that family limitation was spreading to the working classes. They believed that fertility control was widely practised and that the class difference was in methods: working-class women resorted more to abortion than to the preventives sought by middle and upper class women. The Commission heard how abortion had become more prevalent in the previous four to five years in Sydney, how it was common in country districts and practised, Dr John Harris, a local general practitioner divulged, by the mining population of Newcastle. We may infer also from the evidence of doctors and police that withdrawal, the man's method, though not given due weight by the Commissioners, was also 'very common', and with abstinence perhaps one of the oldest expedients.

37RCDBR, vol 2, Minutes of Evidence, Evidence of Dr C.W. Morgan, 24 Sep 1903, qq.1091-2. The important secondary source is Hicks, 'This Sin and Scandal': Australia's Population Debate 1891-1911
38Ibid., Evidence of Dr Ralph Worrall, 2 Nov 1903, q.2933 (source of quotation), q.2961, Snr Sgt J.E. Stawell, 1 Oct 1903, qq.1937-8, Dr Watson Munro, 29 Oct 1903, qq.2668-71, 2698-702, Dr John Harris, 19 Nov 1903, qq.3888, 3912. Methods are summarised in P. Mein Smith, 'Contraception', in Graeme Aplin, S.G. Foster and Michael McKernan (eds), Australians: A Historical Dictionary, Sydney, 1987, p.91; and in detail in Hicks, 'This Sin and Scandal'; Ruzicka and Caldwell, End of Demographic Transition; Larson, 'Growing Up in Melbourne'; Quiggin, No Rising Generation
This testimony of medical contemporaries underlines the point made by Larson that the cooperation of husband and wife was desirable for effective fertility control and spacing; and when the husband objected or preventive checks were not available the woman was faced with the prospect either of abortions, of which Judith Allen gives a number of examples, or of a large family.39

RESPECTABILITY

Larson concluded that the ideological importance of separate private and public spheres and 'respectability' were at the root of the fertility decline in Melbourne, and it is reasonable to suppose that these cultural influences also had weight in the infant mortality transition. As I have explained, van de Walle and van de Walle consider the view of the child in the 'bourgeois' family as one of a confluence of elements which brought infant mortality rates down. But the contribution of the 'private child' and behavioural changes have received perhaps less attention in the mortality debate than is their due. Larson is careful to note that the ideology of domestic sentimentalism, to which 'respectable' clerks and artisans, and not only middle-class people, aspired in the 1880s, was insufficient to bring about conscious fertility control, but it made control feasible. She invokes the findings of Janet McCalman, that there was an economic floor to the practice of respectability: as I indicate in the literature review, McCalman has shown that to lead an ordered family life, with a sober breadwinner and clean house kept by a wife who did not work for money, required a steady income.40 But

39Larson, 'Growing Up in Melbourne', chap 5. Judith Allen, 'Octavius Beale Re-considered: Infanticide, Babyfarming and Abortion in NSW 1880-1939', in Sydney Labour History Group, What Rough Beast? The State and Social Order in Australian History, Sydney, 1982, pp.127-8. The experience of one of my great-grandmothers illustrates the latter outcome. An only child herself - a product of the fertility transition in the 1880s - she gave birth to ten children to please her husband, who had entered into competition with another of his male kin to see who could have the most offspring.

40Larson, 'Growing Up in Melbourne'. The crucial source on respectability is McCalman, Struggletown: Public and Private Life in Richmond 1900-1965
Larson found that the changes in fertility could only be adequately explained with reference to values, and the same could be true of infant mortality.

**SPACING**

Respectability, then, probably encouraged the spacing of births. In white Australia, as in European and United States populations, it appears that couples were spacing their children earlier than demographers first thought, from the 1880s. Without empirical data on birth spacing, the real decline in age-specific marital fertility shows that this is what married people were doing. If the fall in age-specific fertility within marriage is as great in younger age groups as among older women, we can be confident that these young women were practising spacing behaviour.

Ruzicka and Caldwell tabulated age-specific marital fertility rates among women in New South Wales and concluded that fertility decline in the 1880s was associated with attempts at spacing.\(^4^1\) While they deduced that this practice spread from older to younger women, presumably prompted by the depression of the 1890s, Larson found 'a clear trend of a longer time between births' among wives, including young wives, of professionals, businessmen and skilled workers, but not among the poor, in the 1880s and 1890s.\(^4^2\)

It seems reasonable to speculate that the halving of average completed family size from six to three, the spacing of births, and the earlier completion of childbearing, affected mortality trends by allowing parents more time and space for their offspring, while there was more money on a limited, single income to spend on children.\(^4^3\) Secondly, the different

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\(^{4^1}\)Ruzicka and Caldwell, *End of Demographic Transition*, p.97. Their results are given in Appendix 5

\(^{4^2}\)Larson, 'Growing Up in Melbourne', chap 5. Larson's data are also referred to in Appendix 5

\(^{4^3}\)Smith, *The People's Health*, p.122, in Benson, (ed), *The Working Class in England*, p.56, and *The Retreat of Tuberculosis 1850-1950*, Beckenham, Kent, 1988, pp.8-9; Gandevia also suggested a relation between fewer children, more time and money to feed them, in *Tears Often Shed*, p.93. See also chap 1
attitudes implicated in this change deserve to be pondered; women, and men, may have wished to space their children and have fewer of them so that they could better care for each child, who carried their aspirations for the future.44

EDUCATION OF WOMEN

Elementary education for girls and boys was widespread in the nineteenth century before the State legislated for compulsory attendance, and this must have altered the place of children in the family, and society at large.45 When Larson explored the relationship of education to the fertility decline in Australia she found the first version of Caldwell's thesis unsupported, that the fundamental issue in the demographic transition was the spread of compulsory attendance at schools. She thought that schooling continued to take the form which best suited families.46 Her work nonetheless fits neatly with Caldwell's wealth flows concept in its recent formulations; we may infer that the legislation nonetheless picked up the last of the working classes, many of whom were girls, so that by 1900 practically all new mothers had some elementary schooling. For the first time, then, Australia contained a high proportion of smaller families whose mothers had all been to school. Powles has offered reinforcement for this interpretation: he argues that people's health can be better protected when they can read and thus absorb written instruction and that women's education must have had an influence on the health of their babies, and

This proposition could be seen to have a parallel in the early modern period, in the explorations by historical demographers of the importance for mortality of the European marriage pattern. This has prompted E.A. Wrigley to suggest that, 'in seeking to understand the notably modest level of mortality in early modern England, one should look as much to the circumstances of birth as to those of death.' Wrigley, 'No Death Without Birth: The Implications of English Mortality in the Early Modern Period', in Roy Porter and Andrew Wear (eds), Problems and Methods in the History of Medicine, Beckenham, Kent, 1987, p.145
45Ruzicka and Caldwell, End of Demographic Transition, p.22
46Larson, 'Growing Up in Melbourne', p.59; Caldwell, Theory of Fertility Decline, pp.140, 152, 176
concludes: 'It is notable that the big down-turn in infant mortality rates came with the first fully literate generation of mothers.'

These generalisations remain untested for Australia, but it is plausible to argue that the primary education of women was pivotal to the turnaround in the infant death rate. While the coincidence between the big down-turn and the appearance of literate mothers is compelling, I would not emphasise literacy. Rather, I suspect that going to school wrought a change in women's views of themselves, that did not necessarily relate to what they learnt, be it writing, domestic arts or arithmetic. It also altered others' view of them so that women with some education were better able to make decisions for themselves and their children, to seek help and to have their decisions respected by husbands and communities. Contemporaries like Jessie Ackermann, the travelling American campaigner for the Women's Christian Temperance Union in 1913, noted that some men derided education for girls because it unfitted them for becoming wives and mothers, but as it was the lot of most girls to become home-makers, mothers and wives, enlarged control over information and a confidence in skills can only have helped in allowing time for executing tasks, and self-management in cooking and child care.

We still do not fully understand the effects of education on people: education can raise or lower self-esteem; but it is reasonable to suppose that schooling, by enhancing a woman's identity clarification, would help to carry her through troubles, so that whether she had good or bad memories of school, her baby might benefit from her clearer view of herself and the status that came from having some education and being taken more seriously. I would speculate that some schooling, in an increasingly

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47 Powles, 'Keeping the Doctor Away', p.83
48 Jessie Ackermann, *Australia from a Woman's Point of View*, Sydney, 1981 (1st pub 1913), chap xxi
educated society, would facilitate the cultural flow of information from mother to daughter and influence infant mortality through child care.

**THE VIEW OF CONTEMPORARIES**

Medical moralists, nationalists and imperialists in Australia, as in Britain and New Zealand, and progressive reformers in the United States, held a different view of the demographic transition from the positive one of present-day historians and some contemporaries: they responded with alarm to the fall in the birth rate, and with hope to the fall in infant mortality, combined with anxiety about its still too high levels. Powles writes that 'as a subject of public concern, health also tends to crystallize collective fears and hopes. It gives expression to prevailing ideas about how societies progress or go backwards. It is therefore rewarding to look not only at trends in actual health experience but also at prevailing ideas about how good health may be secured.'49

In this instance, it is as important to look at what contemporaries thought about these momentous changes in survival chances as it is to understand the underlying trends in the infant death rate, because both beliefs and the demographic reality shaped the infant welfare movement and the behaviour of mothers.

The decline in the birth rate provided the context for infant mortality to loom as a public problem, and for disparities between and within countries to be magnified into questions of supreme political importance. The panic was about natural increase: befuddled by the demographic transition, politicians moved by the rhetoric of national efficiency and by emergent nationalism, or in Britain's case by the threat of decline as a great power, bestowed new attention on the infant as native-born saviour from the moral and physical decadence menacing the Anglo-Saxon race, which the fertility decline supposedly exemplified. Medical moralists and reformers

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49Powles, 'Keeping the Doctor Away', p.70
interpreted the decline in the birth rate in the context of infant mortality and
presumed low replacement rates, and turned it into an imperial problem
that exemplified racial decadence. At the same time they saw the decline in
infant mortality as the key to the problem of natural increase, which Dr F.S.
Hone, the president of the South Australian branch of the British Medical
Association believed was the measure of Australia's 'future success as a
nation builder.'50 'The newborn child is our best immigrant' became a
favourite axiom of the infant welfare movement in Australia, as in other
countries.51

Increased awareness of Malthus in the late nineteenth century had
encouraged the notion that high birth rates contributed to high infant
mortality, and thus that a falling birth rate was beneficial for infants. But
this was increasingly regarded as old fashioned and untrue. As Hicks has
observed, post-Malthusian debate was stultified because '... in the early 1900s
the realities of Australian demography combined with the psychology of
infant nationalism to form a climate inimical to detached debate.'52

If the decline in the birth rate was a backwards step in the minds of
twentieth century progressives and hygienists, a low infant mortality rate
was the epitome of progress: the real danger of racial degeneracy rested in
the failure to produce enough healthy children. Infant mortality, Dr J.S.C.
Elkington warned, 'aims at the very heart of racial efficiency, because it
deteriorates individual physical efficiency in after life'.53 Elkington, a
nationalist and outdoors enthusiast, was one of the new sanitarians who

50F.S. Hone, 'Infantile Mortality', AMG, 13 Jul 1912, p.25
51See, for example, Lewis, "Populate or Perish", p.166
52Hicks, 'This Sin and Scandal', p.99. For the contemporary debate about the association
between birth and infant death rates, see Hone, 'Infantile Mortality', AMG, 13 Jul 1912, p.28;
W. McLean, 'The Declining Birth-Rate in Australia', IMJA, 20 Mar 1904, pp.109-26; '...A
Rejoinder', 20 Jun 1904, pp.311-16; John B. Trivett, 'The Decline of the Birth-Rate in New
South Wales', IMJA, 20 May 1904, pp.238-48
53J.S.C. Elkington, Infant Mortality and its Prevention, address to Australian Natives'
Association, Hobart, 1909, p.3
espoused progressivism in Australia; he became, in 1904, head of Tasmania's new Department of Health. While Michael Roe portrays Elkington as more preoccupied with excreta disposal than with infant welfare, he summarised the reasoning of the movement, that infant mortality was 'at once the source of greatest loss to the nation, the most preventable, and the least prevented'.

Dr Richard Arthur, also described by Roe, was a social hygienist in pursuit of moral betterment, with a passionate belief in white Australia. The founder of the Eugenics Education Society of New South Wales in 1912 and ultimately Minister of Public Health, he was determined to educate girls in baby-rearing to increase numbers. 'There remains', Arthur proposed in 1901, 'one other method [other than immigration] by which an increase of population may be ensured. It consists not in increasing the birth rate, but in diminishing the death rate [by saving] children who die in infancy from preventable causes.'

The empty spaces of the island continent of Australia had to be filled in order to hold the continent for white people. This assignment, Arthur judged, ought not to befall a great state department - which he would one day direct - but ought to be achieved by educating mothers, '... to whose ignorance of the feeding and hygiene of the young, the appalling infantile mortality is due.'

Habitually, medical moralists blamed mothers for the death rate of babies, and this enduring theme of maternal responsibility fuelled the attention bestowed at the turn of the century on the excessive mortality

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55Roe, Nine Australian Progressives, chap 6
56R. Arthur, 'Increase of Population Through a Diminished Death-Rate', AMG, 25 Jan 1901, p.43, also quoted in Arthur's evidence, RCDBR, vol 2, q.5244, 7 Dec 1903; RCDBR, vol 1; other sources abound, among them, 'The Decreased Birth-Rate in New South Wales', AMG, 21 Nov 1898, pp.502-3; J.W. Barrett, 'Presidential Address', IMJA, 20 Jan 1901, pp.1-28, not to mention discussion in newspapers. The essential secondary source is Hicks, 'This Sin and Scandal', esp. p.51
among illegitimates. In the early years of the century anxieties over the birth rate gave a fillip to social hygienist theories according to which high infant mortality led not to the elimination of the unfit, but to the sacrifice of the unfortunate who, W. Perrin Norris, Chairman of the Victorian Board of Public Health explained, 'if not incurably diseased or degenerate', were a 'valuable public asset, ... well worth looking after'.\textsuperscript{57} Given the disparities in reproductive rates between the wealthy and the poor, the best of the offspring of the poor had to be nurtured to offset the defects inherited from their forebears and imbibed from their environment. These victims of improper feeding and neglect had to be restored to fitness by reforming that environment.\textsuperscript{58} If, on the other hand, illegitimates were found to be the offspring of unhealthy or degenerate parents, who 'under conditions of natural selection would die out as unfit for the battle of life', the 'vicious tendencies' of bad mental heredity could at least be controlled by wise foster mothers.\textsuperscript{59}

Several scholars - Roe in his study of Australian progressives, including Elkington and Arthur, Drs J.H.L. Cumpston and J.W. Barrett, Davison on Barrett, Stephen Garton on Dr Charles Mackellar - demonstrate how the strands of hereditarianism and environmentalism came together in the philosophies of reformers.\textsuperscript{60} Garton takes the analysis a step further, in an admirably clear account of how Mackellar and his medical brethren distinguished between the fit and unfit of eugenist theory, for whom

\begin{footnotes}
\item[57] W. Perrin Norris, \textit{Infant Life Protection}, 1907, p.5; A. Jefferys Wood concurred that the illegitimate deserved a 'fair chance', 'Preservation of Infant Life', \textit{IMJA}, 20 Mar 1908, p.141. These thoughts owe much to Smith, \textit{The People's Health}, pp.69, 120
\item[58] L. Emmett Holt, New York, 'Infant Mortality, Ancient and Modern. An Historical Sketch', \textit{Archives of Pediatrics}, Dec 1913, p.886
\item[59] The Protection of Children', \textit{AMG}, 21 Jun 1909, p.321
\end{footnotes}
different environmentalist and segregationist strategies were developed. His interpretation of how progressives like Mackellar 'forged a coherent marriage of diverse views' is consistent with Greta Jones's assessment of how social hygienists divided the poor into the unfit who could be restored to fitness and the residuum who were the outcome of bad heredity. The philosophy that these historians and Hicks, Carol Bacchi and Anthea Hyslop have described informed the reasoning behind and findings of the 1903-4 Royal Commission on the Decline of the Birth Rate in New South Wales.

Faithful to this ideological view, the Royal Commission had its brief extended to infant mortality. The Commission itself anticipated the expansion of the definition of the 'public child', from the illegitimate to all children. At the same time it was at the brink of the movement of ideas in public health, and captured in its recommendations the shift of emphasis from environmental sanitation to personal health. Hicks has outlined how the Commission, initiated by its president, Dr Charles Mackellar, received and recited conventional medical opinion. Mackellar was simultaneously president of the State Children's Relief Board and author of New South Wales' Infant Protection Act 1904. As such, he was amply qualified to guide the Commission to differentiate between causes of infant mortality in legitimate and illegitimate infants.

Among the legitimate, the Commission listed the causes of infant mortality under eleven heads: the first was neonatal, and the last infectious disease and summer diarrhoea. The remainder focussed on wrong feeding

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63 On Mackellar's initiatives see 'The Care of State Children', *AMG*, 20 Dec 1905, pp.662-3; Hicks, 'Evidence and Contemporary Opinion', chap 4, esp. p.113 and *This Sin and Scandal*, chaps 1 and 2; Garton, 'Sir Charles Mackellar', pp.21-34
and maternal ignorance. To these accepted explanations for infant deaths, the Commissioners added for illegitimates maternal indifference and socio-economic 'disabilities', the separation of mother and child by the baby's placement in a foundling hospital, or a private home by baby farming, an exploitive form of fostering, and infanticide.64

In New South Wales, the Commissioners reported, illegitimates died in 1895-1902 at an average rate of 277 deaths per 1000 live births, 2.8 times the rate for babies born to married parents, of 99 per 1000. Victorian figures were similar; in 1901, the first year that illegitimate death rates were classified separately, these were found to be 2.7 times higher than for legitimate babies.65 In other words, while one in ten legitimate children died, three in ten of the 5-7 per cent born to unwed mothers did not live to see their first birthday.

It was predictable that the Birth Rate Commissioners would endorse the standard infant life protectionist interpretation, that babies born outside marriage were peculiarly susceptible to the inept mothering or neglect that assailed all newborn, because they heard the evidence of doctors, matrons of infant homes and departmental inspectors under the State Children Relief and Children's Protection Acts; feminist campaigners, Judith Allen reports, refused to appear in protest against the absence of women on the Commission and its pronatalist terms of reference.66 The reason illegitimate infant mortality was so high, Dr C.P.B. Clubbe, surgeon to the

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64RCDBR, vol 1, p.39; Hicks, 'This Sin and Scandal', p.28. Baby farming at best was paid childminding, at worst commissioned disposal of the unwanted. Payment could be either in the form of a lump sum or a regular fee; Kathy Laster, 'Frances Knorr: 'She Killed Babies, Didn't She?'' in Marilyn Lake and Farley Kelly (eds), Double Time: Women in Victoria - 150 Years, Melbourne, 1985, p.149. One-off payments placed babies at particular risk by limiting the incentive of the minder to provide care once the money was gone.

65RCDBR, vol 1, Report, pp.37-9; Department of Trade and Customs, Report on Infantile Mortality, 1917, p.23

Sydney Children's Hospital and future leader of the infant welfare movement in New South Wales asserted, was that mothers had 'no object' in keeping their babies alive, and 'every object' in disposing of them.\textsuperscript{67} The implication was that unmarried mothers were stupid, feckless, morally imperfect - and penniless.

Feminists, on the other hand, expressed a more liberal attitude to the unmarried and criticised the rush of child life protective legislation for placing the burden of responsibility on the mother, demonstrated by suffragist protest in Victoria in 1900 at the trial of unwed mother Maggie Heffernan who, having drowned her baby in the Yarra, had her death sentence commuted.\textsuperscript{68} Both views implied that illegitimate babies died because their mothers could not afford properly to care for them however onerous their ignominy, which hardship, as well as hypocrisy, reinforced.\textsuperscript{69}

The New South Wales Commissioners heard how illegitimacy was synonymous with destitution and miserable surroundings, affecting mortality chiefly in the baby's first year; but maternal ignorance and indifference, for the illegitimate as for the legitimate, eclipsed poverty in their explanatory ordering.\textsuperscript{70} In their preoccupation with the disposal and desertion of infants the Commissioners were responding to a recently perceived crisis. In the 1890s, baby farming and infanticide had become public as scandal, culminating in the executions of baby farmers John Makin in New South Wales, Frances Knorr in Victoria and, in New Zealand, Minnie Deans, for burying babies in the back garden. These sentences,
indeed convictions, were exceptional, however.71 Parents continued to deposit illegitimate children in small establishments for a lump sum or regular fee, with no guarantee that they would not be starved, drugged or suffocated to death, even though from the 1890s the weight of welfare legislation was directed intensively at curbing baby farming. In Victoria from 1890, and since 1892 in New South Wales, statute law specified that paid minders of infants under two and three be registered, while lump sum payments were prohibited in New South Wales because these invited baby murder, or at best, neglect for profit. Victoria followed suit in 1907, but sanctions were not enough to stop some babies being threatened, if fewer than previously.72

An illegitimate child could be born and be buried by mother or midwife, and the authorities would not know.73 In 1900 stillbirths did not enter the death or birth register. This loophole allowed midwives and doctors to arrange for infants born alive to be interred as stillborn, without undertakers knowing the contents of the coffin.74 Undertakers also colluded in the concealment of baby deaths. In the ten years before the Commission, 75 cases of infanticide reached the New South Wales Police Gazette, but Allen's research demonstrates that there were more.75 The best that the

71Teale, Colonial Eve, pp.135-8; Gandevia, Tears Often Shed, pp.104-5; Davison, The Rise and Fall of Marvellous Melbourne, p.225; Laster, 'Frances Knorr'; Allen, 'Octavius Beale Reconsidered', p.121


73RCDBR, vol 2, Evidence of G.E. Ardill, Director, Sydney Rescue Work Society and Babies' Home, Newtown, 29 Oct 1923, q.2876, W.G. Armstrong, MOH, Sydney, 7 Dec 1903, q.5180-1

74Ibid., Evidence of W.G. Hayes-Williams, Registrar-General, 27 Aug 1903, qq.57, 60, 62, 67-8, F.G.C. Hanslow, Secretary to Trustees of ... Cemeteries, 26 Nov 1903, qq.4273, 4280, 4296, Dr J.M. Creed, MLC, 26 Nov 1903, q.4194, citing an extreme case of a midwife certifying as stillborn a child who 'died in a woman's arms on a steamer in the harbour'; Exhibit no 80. Teale, Colonial Eve, pp.141-3

75RCDBR, vol 2, Exhibit no 62. Allen, 'Octavius Beale Reconsidered', pp.114-16
A historian can do is to surmise from fragmentary evidence the degree to which the mortality of the unwanted was under-reported, and my surmise is that it could have been underestimated by as much as 50 or 100 per cent.

Infanticide has generated much comment and this comment has underpinned disproportionate scholarly interest. Allen maintains that increased infant mortality in New South Wales in the 1890s was the result of infanticide, baby farming and abortion. I would argue that it was due far more to the 'urban-sanitary-diarrhoeal effect' described by Woods et al. Overall, the known numbers of infanticide victims are tiny compared with the annual toll from infant diarrhoea, and it is this latter killer, and low birth weight, that should concern us more in this period.

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CHAPTER 3
DIARRHOEA

We still do not know why infant mortality turned downwards from the 1880s; things were happening which contemporaries could not measure and which we cannot measure. This chapter finds support for the arguments that public sanitation appears to have been important in the capital cities, albeit ambiguously, and the milk supply less so. The preoccupations of contemporaries with mothers, however, are themselves a reminder that we cannot judge the relative effectiveness of these components without considering mothers' behaviour, about which we have little direct information. Infant diarrhoea, whether caused by bacteria or viruses, is a finger as well as water and food-borne disease; hence questions about household transmission and family size, and mothers' behaviour, must be invoked. A decline in virulence or transmissibility of the relevant pathogens was also possible, although this is not necessary to explain the downward trend in the infant death rate, nor the short-term fluctuations around the trend early in the century, especially when the end of Australia's worst drought coincided with massive social change.

This chapter asks how responsible could mothers be for infant survival before removal of the worst environmental filth and feculence and thus develops the setting portrayed in Chapter 2 for the rise of mothercraft institutions. It establishes that the amendment of the perceived relationship between filth, milk and mothers involved improvements both within the home and in the public environment. Mothers had to clean their houses and children, while open sewers and drains had to become less of a public health hazard before interventions would turn to infant welfare. The movement of public policy from sanitation to milk to mothers denoted not merely the passage from miasma to germ theory but pragmatic responses by
reformers, whose own efforts moved down a logical chain. But the story is not simple, as social change is not linear; and the thinking on diarrhoea was confused, as will be shown.

The subject of infant diarrhoea is important because this was the major killer of babies in Australia, and its subsidence was responsible for much of the transition in the infant mortality rate. Diarrhoea, together with other water and food-borne infections, was a bigger killer than in Britain and New Zealand. Known variously as summer diarrhoea, cholera infantum (restricted by the late nineteenth century to the severest cases) and in the early 1900s by the new term, gastroenteritis, this complex reached epidemic proportions as the thermometer rose in the summer.

Diarrhoea may be a conquered disease in the industrialised world, but it remains the biggest killer of babies in Africa today. In Sri Lanka, recent surveys show that, on average, each child under five has at least one attack a year; and that half the deaths in the under five population are associated with a diarrhoeal episode. The proportion of babies under one reported to have diarrhoea in the last two weeks preceding a survey in Sri Lanka in 1987 was 11 per cent. Yet diarrhoea was, and is, preventable - and this awareness directed the infant welfare movement.

The remedy, by the early 1900s, seemed clear enough; but the etiology of this group of conditions is complicated, and this set constraints on the effectiveness of interventions. Mostly diarrhoea attacked the bottle fed. A small proportion of breast fed babies also died; nonetheless the very act of breast feeding protected them. It is likely, as Powles has stated, that if

1Powles, 'Keeping the Doctor Away', p.72, makes this general point
'studies in Third World countries are any guide to Australian experience...infants and toddlers would typically have suffered several bouts of diarrhoea each year. When these were more severe or more frequent than usual, the child's growth would be set back. The child would then become vulnerable to fatal infection - a final attack of diarrhoea, or one of the common respiratory infections of childhood spreading down the air passages to produce broncho-pneumonia.'

Given the prevalence of diarrhoea, its occurrence with other diseases may have been incidental in some cases. But the frequent presence of respiratory symptoms in infants with diarrhoea, and what is sometimes described as a synergistic relationship between gut and respiratory infections and the nutritional state of the sick child, is so well documented in Third World countries today that it is reasonable to suppose that the debilitating cycle of weakness and repeated infections was the common pattern among European-Australian infants at the turn of the century. As Dr Gerald Cussen of Ballarat observed in 1899, a child with diarrhoea could develop respiratory, among other, complications; in chronic cases with impaired nutrition, 'milk infection' sometimes resulted in tuberculosis. It was the dehydration which killed, then as now, because of the inability of babies to endure fluid loss.

Acute diarrhoea in infants, whether the result of rotaviruses or bacterial

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4Powles, 'Keeping the Doctor Away', p.71
6G.E. Cussen, 'Infantile Gastro-Enteritis', AMG, 20 May 1899, p.189. Dr C.A. Theland of Brisbane likewise thought that some infant deaths attributed to broncho-pneumonia and tubercular meningitis were really the result of summer diarrhoea, 'Notes on Infantile Diarrhoea in Brisbane', AMG, 21 Mar 1914, p.247
7Dr M.J. Thearle, correspondence, 8 Jul 1987; Morley, Paediatric Priorities, p.188
agents such as shigella, salmonella or *E. coli*, is transmitted by infected faeces, spread orally in food, contaminated water and drink, from hand to mouth, and from person to person. Flies also probably played a role as a vector of disease in certain seasons.⁸ Recent research into diarrhoea in Bangladesh shows that viral diarrhoeas 'are highly contagious and transmission occurs rapidly within a susceptible community', and Sri Lankan studies show that the incidence rate varies with the education of the mother.⁹ Again if these modern studies are a guide to historical experience in European populations, we may infer that infant diarrhoea spread fast wherever there was close clustering of babies with infected babies, older carriers, and filth, and that educated mothers mitigated the effects of bad plumbing, dung heaps and summer heat.

**MOST DEADLY OF DISEASES**

Contemporaries recognised that diarrhoea was a symptom of many conditions, and that deaths were understated. Apart from babies said to have died from associated respiratory problems, deaths were regularly registered as due to 'debility' and 'atrophy', or 'wasting diseases' (atrophy was included with debility in some parts of the Commission on the Birth Rate's Report, in others with diarrhoea); as 'dentition', otherwise known as 'teething'; and as 'convulsions' or, Dr William Byrne of Brisbane added, even 'thrush'.¹⁰

Among illegitimate infants generally the Commissioners on the Birth Rate found diarrhoea to be more than three times, debility nearly five times, malnutrition seven times and the outmoded category of miasmatic diseases

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1.3 times higher than among legitimate infants. Deaths attributed to debility fell with improvements in diagnosis, as more came to be defined as the outcome of gastroenteritis; but still, of 8639 illegitimate babies who died in New South Wales and Victoria between 1905 and 1914, 2622 were registered as having died from congenital debility and 3090 from diarrhoea and enteritis which, combined, accounted for two-thirds of the total.11

According to the explanation fashionable soon after 1900, the high mortality in babies' homes and foundling hospitals resulted from the separation of mother and child, or loss of mothering, the 'whole secret' of rearing children.12 Mothering entailed both the nutritional benefits of breast feeding and the 'bond of sympathy' established by nursing between mother and child.13 Rescuers therefore strongly advocated breast feeding and opposed the practice of leaving a baby in its cradle, propped up with a feeding bottle, as W. Eury, Children's Protection Department Inspector, explained: 'It is the nursing. The baby misses the nursing; if she does not get the nursing she ... will pine away and die.' Even if picked up to be fed two-hourly, in the contemporary routine, Dr W.F. Litchfield of Sydney's Children's Hospital added, the baby, 'quite apart altogether from diarrhoea, ... dwindles away'.14

The Australian-born Litchfield, a gentle and thorough man, was something of a medical philosopher. From 1894, when he was appointed a resident medical officer at the Royal Alexandra Hospital for Children, he embarked on a career as a children's physician, and later as a pathologist to the Royal Prince Alfred Hospital - which was cut short by his premature

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11RCDBR, vol 1, Exhibit no 127, p.88; Department of Trade and Customs, Report on Infantile Mortality, pp.24-5; NSW Official Year Book, 1915, p.148
12RCDBR, vol 2, Evidence of A.W. Green, Chief Boarding-out Officer, State Children's Relief Department, 1 Oct 1903, qq.2044-5, Mrs Rebecca Graham, Matron Benevolent Society, 30 Nov 1903, qq.4489-91, also cited in vol 1, pp.41-2
13Australian-trained Dr Agnes Bennett used the term in Baby's Welfare. Practical Hints to Mothers, Wellington, 1907, p.4
14RCDBR, vol 2, Evidence of W. Eury, 1 Oct 1903, q.2235, W.F. Litchfield, q.2399
death in 1922 from complications following an attack of influenza during the 1919 pandemic. An original thinker and campaigner for the isolation of babies with gastroenteritis, his views of pathology and etiology often found him at odds with his colleagues. While doctors tended to blame bottle feeding more than lost maternal love for the high death rates in foundlings because they were preoccupied with diarrhoea and wasting, Litchfield suspected that food was not the sole explanation of why, in infants' homes 'where the crib takes the place of the mother's arms, and routine robs the child of its bouncing joy', babies 'all highly susceptible to bowel complaints ... rapidly fall into a state of mal-nutrition, and become a ready prey to the onslaughts of infective diarrhoea.'

By 1905 Litchfield and his colleague Dr W.G. Armstrong, Sydney's City Health Officer and Medical Officer of Health to the Metropolitan Combined Sanitary Districts, were convinced that deaths attributed to 'diarrhoea', 'convulsions', 'dentition' and 'debility and atrophy' were due to the same cause because they followed the same seasonal pattern and their clinical experience suggested it. Because of their different views of etiology, Litchfield blamed an acute infectious disease for the whole group of conditions and Armstrong wrong feeding. Armstrong, born in England, was one of the first students to graduate in medicine from the University of Sydney in 1888. He belonged to the new breed of sanitarians, the first generation of doctors to learn about bacteriology. Experience in country practice in outback New South Wales introduced him to life in an insanitary mining settlement, enough to prompt a return to England to complete a Diploma of Public Health at Cambridge in 1894-5. He became Sydney's

15'Obituary. William Frederick Litchfield', MJA, 8 Jul 1922, pp.49-51
16Litchfield, 'Diet, Dystrophy and Diarrhoea in Infants', AMG, 27 Dec 1913, p.582
Medical Officer of Health in 1898 and is recognised as the founder of the infant welfare movement in Australia.18

In 1905 Armstrong prepared a graph to show the Australasian Medical Congress in Adelaide the seasonality not only of diarrhoeal diseases, but of deaths recorded as due to atrophy, convulsions and dentition. His graph is reproduced in Figure 6. Because the monthly infant death rates by cause were not available, he plotted the average rates by reported cause for people at all ages in Sydney from 1875-1904, a reasonable procedure, because 90 per cent of deaths from diarrhoeal diseases in New South Wales at the time were attributed to infants. The close resemblance of the seasonal curves, he thought, offered a strong presumption 'in favour of identity of etiology', and justified 'treating all these assigned causes of infantile deaths as essentially one.'19

Recent secondary evidence suggests that this judgment was right. In Australia, Lewis has backed Litchfield and Armstrong that much of the mortality registered under convulsions, atrophy, 'and probably that returned under dentition', should be added to deaths from diarrhoeal disease, while Cheney has found that there was room for overlap because 'seasonal patterns provide an epidemiological identification of diarrhoeal mortality.'20 The relationship is striking between the curves for dentition and diarrhoeal diseases, which suggests that deaths attributed to teething were really due to gut infections. The atrophy curve, while less similar, resembles the diarrhoeal curve, as we would expect since 'atrophy' often described dehydration; and the disparities could result from the possibility that a portion of these deaths were due to other causes, including low birth

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18'Obituary. William George Armstrong', MJA, 28 Feb 1942, pp.272-4
19Armstrong, 'Some Lessons', p.515
SYDNEY AND SUBURBS.

Monthly Deaths from Diarrhoea and certain other Diseases at all ages.
Excess or Defect per cent compared with the Mean Average of 30 years—1875-1904.

Armstrong provided no vertical scales. Each square on the vertical axis represents a rise or fall of 10 per cent above or below the mean.

weight. Gordon, moreover, has suggested that the death rates for 'convulsions' might be evenly distributed between deaths from respiratory and gut infections.\textsuperscript{21} We may agree, then, with Armstrong and Litchfield, and with Lewis's interpretation of the extent of diarrhoeal mortality in Sydney, that infant diarrhoeal deaths were under-reported, but with two qualifications: that half, not all, the rate for convulsions should be added; and that a fraction of atrophy deaths should be excluded to allow for weakly babies who without proper food simply faded away.

If we follow the example of contemporaries but add half the rates for convulsions, we obtain the result that infant diarrhoea caused about one half of all infant deaths at the turn of the century (Table 5).\textsuperscript{22} Armstrong and Litchfield presented similar conclusions to the Australasian Medical Congress in Adelaide in 1905, that half of all infant deaths were really due to infant diarrhoea. Probably this estimate was about right - though it should be regarded as an upper bound. To what extent it was an overstatement depended on what proportion of deaths attributed to atrophy and debility were really the result of intestinal infections. So measured, Litchfield realised, infant diarrhoea proved to be 'by far the most deadly of Australian diseases': it commanded a higher death toll for people of all ages than the principal killer listed in Registrar-Generals' returns, tuberculosis, 'which has always been supposed to hold the pride of place as a death-dealer'.\textsuperscript{23} This evidence is important because it challenges McKeown's thesis in Australia, and offers support for the recent revisions.

\textsuperscript{21}Gordon, \textit{Health, Sickness and Society}, p.161. \textit{cf.} Kintner, 'Classifying Causes of Death during the Late Nineteenth and Early Twentieth Centuries', cited in chap 1
\textsuperscript{22}Lewis concluded similarly, but added all convulsions, in 'Sanitation, Intestinal Infections, and Infant Mortality', pp.326-7. Larson produced further evidence that suggests 50 per cent is a reasonable estimate, in 'Childhood Mortality in Late Nineteenth-Century Melbourne'
\textsuperscript{23}Litchfield, 'Summer Diarrhoea in Infants', TAMC, 1905, p.421. Byrne, 'Infant Mortality', \textit{AMG}, 20 Feb 1904, p.56, reached the same conclusion
Table 5  Commonest Causes to which Infant Deaths were Attributed Victoria and New South Wales, 1882-1902

Rates per 1000 Live Births

<table>
<thead>
<tr>
<th>Attributed Cause of Death</th>
<th>Victoria 1882-91</th>
<th>Victoria 1892-1901</th>
<th>New South Wales 1893-1902</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Enteritis</td>
<td>6.52</td>
<td>20.66</td>
<td>17.36</td>
</tr>
<tr>
<td>(2) Debility, atrophy</td>
<td>26.86</td>
<td>17.38</td>
<td>17.04</td>
</tr>
<tr>
<td>(3) Diarrhoeal diseases</td>
<td>21.05</td>
<td>8.96</td>
<td>11.95</td>
</tr>
<tr>
<td>Prematurity</td>
<td>12.55</td>
<td>13.65</td>
<td>13.67</td>
</tr>
<tr>
<td>1/2(4) Convulsions</td>
<td>8.19</td>
<td>5.07</td>
<td>9.66</td>
</tr>
<tr>
<td>Bronchitis</td>
<td>7.47</td>
<td>4.37</td>
<td>6.19</td>
</tr>
<tr>
<td>Pneumonia</td>
<td>4.29</td>
<td>5.85</td>
<td>4.95</td>
</tr>
<tr>
<td>Whooping cough</td>
<td>2.53</td>
<td>2.49</td>
<td>3.37</td>
</tr>
<tr>
<td>Tubercular meningitis</td>
<td>2.25</td>
<td>2.73</td>
<td>-</td>
</tr>
<tr>
<td>(5) Want of breast milk</td>
<td>2.95</td>
<td>2.26</td>
<td>-</td>
</tr>
<tr>
<td>(6) Malnutrition</td>
<td>-</td>
<td>-</td>
<td>1.21</td>
</tr>
<tr>
<td>(7) Dentition</td>
<td>2.41</td>
<td>1.84</td>
<td>1.00</td>
</tr>
<tr>
<td>(8) Diseases of stomach</td>
<td>6.53</td>
<td>1.70</td>
<td>-</td>
</tr>
<tr>
<td><strong>Average total infant death rate</strong></td>
<td><strong>127.42</strong></td>
<td><strong>109.10</strong></td>
<td><strong>111.10</strong></td>
</tr>
<tr>
<td><strong>% diarrhoea</strong></td>
<td><strong>55</strong></td>
<td><strong>51</strong></td>
<td><strong>48</strong></td>
</tr>
</tbody>
</table>

Infant diarrhoea, counted as categories (1) - (8), with half the death rate attributed to 'convulsions' added, caused half of all infant deaths. However probably not all deaths assigned to 'debility' and 'atrophy' should be included. Byrne, 'Infant Mortality', AMG, 20 Feb 1904, p.56, added 'want of breast milk' as an attributed cause really due to diarrhoea (hence it is numbered in the table). The suggestion that half of convulsions might also have been due to diarrhoea has been made by Gordon (note 21), and by Prof. J.C. Caldwell.

Sources: Compiled from cause of death data presented to the Royal Commission on the Decline of the Birth Rate: RCDBR, vol 1, Report, Exhibit no 49, p.78, and no 101, p.81
The second point to be made from Table 5 is that there were shifts between categories with improvements in medical knowledge, so that the enteritis group appeared to be increasing as deaths attributed to diarrhoeal diseases and other symptoms dropped away. This switching between rubrics, as deaths that once would have been classified as due to atrophy or diarrhoeal diseases were described more accurately as enteritis, or inflammation of the bowels, could have obscured a downward trend in infant diarrhoeal mortality before 1900.24

Australian doctors, like their British counterparts, had pondered the etiology of infant diarrhoea since at least the 1850s, identifying the problem as teething until indigestion from over feeding had from 1870 replaced this notion. The rubber teat appeared in 1856, so the rise of suspicion about increased bottle feeding might have been coincident with the diffusion of the device.25 More and more writers adjudged diarrhoea to be a disease of the bottle fed. This view was promoted in the United States by Abraham and Mary Jacobi, who had become convinced in the 1850s that to educate mothers in proper feeding was the only way to reduce infant mortality in New York's slums, and became entrenched in European medicine by the late nineteenth century, to be embellished as decades passed by new fashions in interpretation.26 Whether the high infant death rate - headed by atrophy and debility, convulsions, and diarrhoea in South Australia in the 1870s - was due to 'defective sanitary arrangements, or to neglect resulting from the debility, indolence, or intemperance of mothers, ... to the ignorance of mothers as to the best mode of rearing children, ... or to the administration

24This thought has benefited from discussion with Ann Larson.
25A useful overview of improvements in medical knowledge is given in Infantile Mortality and Summer Diarrhoea: A Retrospect', IMJA, 20 May 1908, pp.249-52. On the views of British doctors, see Smith, The People's Health, pp.85, 88. The rubber teat, when it first appeared, was in fact unpopular because of its rigidity, taste and smell. Ian G. Wickes, 'A History of Infant Feeding', Archives of Disease in Childhood, vol 28, 1953, p.421
of aperients to new-born infants - butter, sugar, and such other abominations; or to the administration of spirits, cordials, soothing powders, or other narcotic drugs; or to weaning at too early an age; or to administering innutritious food, or food of too substantial a consistency, or too farinaceous a character, either before or after weaning; or to the attendance on the mother of midwives; or to baby farming; or to the poverty of the parents; or whether, on the other hand, it be mainly due to congenital weakness or to the effects of climate, ...', Henry Hayter, the Government Statist of Victoria, declared in 1878 demanded a full inquiry. Dr S.J. Magarey of Adelaide blamed the hot, dry climate for gastric disturbance and thought that in the continued heat the 'effects of improper feeding may be more marked'.

It was understandable that the seasonal curve attracted curiosity, for every year the infant death rate between November and March was twice the average of the other months because of summer diarrhoea. The seasonality of the complaint both indicated possible causes and misled people. In 1893 Dr J.T. Mitchell, a general practitioner from the Victorian town of Ballarat, noticed that the past summer's 'close, muggy weather' had been 'particularly fruitful' in bringing on attacks of summer diarrhoea. He observed that this threatened artificially fed babies, since in four years not one Ballarat child attacked by 'real summer diarrhoea' characterised by vomiting and flaccid abdomens (which might now be described as dehydration) had been 'absolutely breast-fed'. Mitchell recognised the weather to be only one predisposing factor, however: the 'social position' of parents influenced babies' survival because attention to detail conferred

28 S.J. Magarey, 'Our Climate and Infant Mortality', Transactions and Proceedings, Philosophical Society of Adelaide, 1878-9, vol 2, pp.1-9, courtesy of Ralph Shlomowitz
29 RCDBR, vol 2, Evidence of W.F. Litchfield, 8 Oct 1903, q.2387. In the late 1870s, Dr Magarey had noted correspondingly that in South Australia twice as many babies died in December, January, February and March as in June, July, September and October, Magarey, 'Our Climate', p.4
immunity. He attributed the influence of the weather to the effect of heat on food, reduced by better off mothers, and worsened by local dairymen's habit of 'mixing yesterday afternoon's milk with this morning's and selling the mixture as "fresh,"' which he thought issued in misery for the bottle fed. His was a conclusion about the class- and mother-mediated effect of climate.

Dr Richard Stawell, honorary physician to the Children's Hospital in Melbourne from the 1890s and from 1903 to the Melbourne Hospital, with a Diploma of Public Health - versed in the new bacteriology, and an influential clinical teacher - had a different insight. From a study of Melbourne's mean monthly temperatures plotted against deaths from infant diarrhoea in the 1890s, he concluded that infant diarrhoeal mortality soared in Melbourne, as in European cities, when the mean monthly temperature climbed above 60° F (70° F in Queensland); and rejected the simple causality propounded by many of his profession who, he alleged, saw the relation between heat and diarrhoea as akin to that between cold and bronchitis. Highest mortality did not coincide absolutely with hottest spells, while not all children of susceptible age suffered, the breast fed being most notably exempt. He deduced that summer heat was a 'remote, pre-disposing, though very potent factor' in summer diarrhoea; the 'real' cause was artificial feeding with untrustworthy milk. In other words, hot weather was necessary but not sufficient to explain the seasonal curve of the disease and the exciting cause was what the baby ate.

Explicit acknowledgement of summer diarrhoea as an infectious germ-caused disease is evident in the Australian medical journals from the 1890s. The origin of the British infant welfare movement is often dated from the landmark address by Dr Arthur Newsholme, when as the Medical Officer of

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31'In Memoriam. Richard Rawdon Stawell', Royal Melbourne Hospital Clinical Reports, vol 6, no 1, Jun 1935, pp.1-4, H. Boyd Graham Papers, MS 1554, AMA Library, Melbourne
32Stawell, 'Summer Diarrhoea: A Review of Facts and a Study of Statistics', pp.147-9, 152-8
Health for Brighton in 1899 he pronounced infant diarrhoea to be 'essentially a filth disease', spread by micro-organisms that flourished under conditions of high temperature and scanty rainfall, in polluted surface soil.\(^{33}\) In Australia, Stawell reached this conclusion earlier than Newsholme. In 1897 he concluded from American texts and his own experience that acute summer diarrhoea was 'practically an infectious disease,' allied in etiology to typhoid fever and cholera, more prevalent in summer because bacterial in direct cause and bacterial growth in milk and food was 'more active in hot weather'.\(^{34}\) He repeated this message in 1899, months before Newsholme's famous speech.\(^{35}\) Litchfield was another who was quick to accept these ideas. Summer diarrhoea, he told the Royal Commission on the Decline of the Birth Rate in 1903, was an 'acute infection by a definite organism or germ'. He disputed, however, what he described as the 'orthodox' opinion that the germ came from food, as he thought that it could also come from the air or soil.\(^{36}\) Litchfield, as I have explained, insisted unfailingly that it was not malfeeding that killed but an acute specific infection. The seasonal incidence of infant diarrhoea, its epidemicity, sudden onset, definite course, pathological anatomy and behaviour in institutions made this clear to his mind.\(^{37}\)

The problem as Armstrong discerned it was to relate the seasonality of the illness to its imputed causative agent. As he put it, no sooner had spring changed to summer than diarrhoeal mortality usually exploded in an

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\(^{34}\)R.R. Stawell, 'Summer Diarrhoea and Its Treatment', IMJA, 20 Dec 1897, p.795


\(^{36}\)RCDBR, vol 2, Evidence of Litchfield, 8 Oct 1903, qq.2388-9

epidemic as if the rise of temperatures above 60° F pressed the 'trigger of a
gun'. Armstrong did not use the word faeces, but his discussion of Sydney's
sanitary history indicates that this is what he meant - cow and horse
droppings, cesspools and other waste. Flies Armstrong inculpated in passing
as vectors. Their 'feet swarming with micro-organisms, after visiting
heaven knows what foul garbage', they fouled the food given to the infant,
and so, he believed, did 'dust from streets and yards, carrying particles of
manure'. While not strongly stated, Armstrong had made the link
between manure, the baby's food and flies.

It is fair to conclude that the future leaders of the infant welfare
movement had a good idea of the causes. In Melbourne Stawell's friend Dr
A. Jeffreys Wood, a future leader of the Victorian baby health centres,
suspected flies. Dr Alfred Jefferis Turner, Brisbane's first Medical Officer of
Health, believed that stools in cases of shigella [dysentery], at least, were
'highly infectious' and the contagion spread by flies which divided their
time between the baby's napkins, milk and food. Thus far, the evidence
supports the hypothesis that bacteriological knowledge dictated the choice of
interventions and informed the ultimate success of the infant welfare
movement. But we have to remember that some medical opinion was less
enlightened: many doctors held to the common sense view that
'atmospheric condition' explained why diarrhoea was worst in the

39Armstrong, 'Some Lessons', p.393
40Stawell, 'The Etiology of Summer Diarrhoea', IMJA, 20 Jan 1908, p.31. A. Jeffreys Wood,
'The Prevention of Summer Diarrhoea in Children', IMJA, 20 Jan 1908, p.41
41 He was not disposed, however, to believe that the majority of cases of summer diarrhoea
were due to this organism. Jefferis Turner, 'Some Practical Observations on the Management
Jefferis Turner, M.D. (Lond.), D.P.H. (Cantab.): A Man Before His Time', paper, Medical
History Conference, Melbourne, Nov-Dec 1984
contaminated atmosphere of large cities and in hot, muggy weather. Dr W. Morrison, physician to the Ballarat Hospital, expressed a widespread eclectic confusion when he declared in 1905 that teething as well as atmospheric conditions and 'too much food [or] improper food' influenced the disease.

The new age of bacteriology, indeed, strengthened assumptions that infant diarrhoea was due to wrong feeding, because doctors responded by dividing diarrhoeal disease into digestive and infective types: simple diarrhoea, the outcome of indigestion from wrong food or too much food; and summer diarrhoea, or acute gastroenteritis, which resulted from the absorption of poisonous bacteria or their products. The two classes might be simplified further, as due to food and 'food infection'. Ordinarily practitioners diagnosed the digestive type when the baby passed green stools and an infection when the faeces contained blood and slime. Sometimes the classes seemed indistinguishable. The simple type was commoner, shorter in course and less fatal. But it was perceived as equally ominous, because a child with an upset stomach was more susceptible to gastroenteritic infection. In comparatively rare cases, doctors hypothesised that epidemic summer diarrhoea developed into a third, severe form, cholera infantum, named for its rice water stools which resembled those in Asiatic cholera, and further identified by high fever, severe vomiting and wasted folded skin. In these cases the baby almost always died. Stawell, conversant with the latest

42A useful overview of improvements in medical knowledge is given in 'Infantile Mortality and Summer Diarrhoea: A Retrospect', IMJA, 20 May 1908, pp.249-52
43Morrison, 'The Summer Diarrhoea of Children', AMG, 20 Jan 1905, p.8
44Armstrong used this term in 1905, in 'Some Lessons', p.391
literature, gave a clearer exposition of types in 1908 than most of his colleagues when he distinguished three categories of diarrhoeal disease: 'dyspeptic diarrhoea', characterised by green stools; acute infective diarrhoea due to dysentery; and a third type, fermental diarrhoea, or enteritis, which he thought could lead to infective diarrhoea and so classified with the dysenteric group as 'summer diarrhoea' rather than under the first heading. In other words, nineteenth century notions of miasmic poisoning, coupled with mounting concern about the ideal quantity and quality of food, survived alongside germ theory, which bacteriologically trained members of the medical profession applied to explain known clinical differences.

These changing perceptions of the disease were propelled by laboratory experiments, spearheaded in the English-speaking world by work in the United States funded by the Rockefeller Institute for Medical Research in New York. In 1903, following the latest American literature, Litchfield and New South Wales government bacteriologist Frank Tidswell in Sydney isolated in a nine week old baby with diarrhoea the dysentery bacillus first found in 1897 in Tokyo by Shiga. By 1905 they had isolated three such cases. As a result of these ideas diffused from the United States and continental Europe, the avant garde reclassified summer diarrhoea as due to dysentery. But this did not explain the large number of ill babies whose stools did not contain blood and slime. Perplexed by the variety of forms of infection, doctors resorted to digestive upset as an explanation for the cases that left them nonplussed. Even Tidswell, when he outlined the latest bacteriological findings to the birth rate inquiry in December 1903 that

46R.R. Stawell, 'The Etiology of Summer Diarrhoea', IMJ/A, 20 Jan 1908, pp.28-31
47For an outline of bacteriological research in the United States and Germany, see Dwork, War is Good for Babies, pp.41-3
48Litchfield and Hipsley, 'The Relation of Shiga's Bacillus to the Summer Diarrhoea of Infants', AMG, 20 Jan 1905, pp.10-12
summer diarrhoea was due to specific bacteria, the *bacillus dysenteriae*, *bacillus enteritidis* and *bacillus coli communis*, surmised that the trouble was not with bacteria alone. In bottle feeding, the solid curd in cows' milk might be a predisposing cause: 'the mere fact that they [babies] have to deal with a solid clot is perhaps the start of the mischief'.

Encouraged by germ theory, the search for a single cause could have impeded microbiological discoveries. At first, as Tidswell's testimony shows, *E. coli* was a suspect. But the discovery of the dysentery bacilli of Shiga and Flexner deflected interest. Instead *E. coli*, which thrived in animal dung, became the measure of the filthiness of milk. But it was not until 1945 that Dr John Bray established that pathogenic *E. coli* caused infantile gastroenteritis. Bray's own reminiscences disclose that its 'evanescent' seminal smell finally gave it away.

Bacteriological investigations undertaken at the time did, however, confirm that dysentery was implicated in summer diarrhoea, and present-day experience suggests, in 'convulsions', which are suggestive of shigella.

We do not know the extent of this bacterial contribution. Litchfield was one

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49RCDBR, vol 2, Evidence of Tidswell, 3 Dec 1903, qq.4667, 4669

50The debate came to a head in the *Medical Journal of Australia* in 1919 when Dr Selwyn Harrison, physician to the Renwick Hospital for Infants, and Dr R. Donald Luker of Sydney disputed Litchfield's emphasis on a theory of infection and promoted a pathology of digestive disorders which they thought were the real cause of gastroenteritis. Harrison, 'The Digestive Disorders of Artificially-Fed Infants', *MJA*, 6 Dec 1919, pp.475-9, Luker, 'The Food Factor in Gastro-Intestinal Diseases', ibid., pp.480-3, and Litchfield, 'Some Notes on Infant Mortality', ibid., p.479. See also the editorial, 'The Feeding of Infants', ibid., p.488

51Mathewson, 'Some Notes on the Prophylaxis and Treatment of Gastro-Enteritis', *MJA*, 26 Oct 1918, p.345

52J.S.B. Bray, 'Bray's Discovery of Pathogenic *Esch. coli* as a Cause of Infantile Gastroenteritis', *Archives of Disease in Childhood*, vol 48, 1973, pp.923-6; Dwork, *War is Good for Babies*, p.50

53Again a useful summary of contemporary evidence is given by Cumpston (edited by Lewis), *Health and Disease in Australia*, p.227
of the first to believe that the severer forms of summer diarrhoea were
dysenteric, but by 1920 he had decided that this did not explain the ordinary
sort in Sydney, and he could well have been right.\textsuperscript{54} Lancaster, for example,
found that dysentery was not a leading cause of intestinal disease in
infants.\textsuperscript{55} With the benefit of hindsight, it is worth pondering whether
some of the green stools which doctors diagnosed as due to digestive upset
were the result of viruses, as rotavirus enteritis begins with vomiting and
fever followed by watery green diarrhoea. The rotavirus was only
discovered in 1973, by Dr Ruth Bishop in Australia. Today viruses are
recognised as the most common pathogens in infant diarrhoea: they are
responsible for 60 to 80 per cent of acute cases in Western countries (60 per
cent in Australia, notably among Aboriginal children) and 30 to 60 per cent
in the Third World.\textsuperscript{56} Assessments of the role of medicine, then, defined in
its preventive sense must grapple with the conundrum that some gut
infections were thought of as simple stomach upsets.

\textbf{TREATMENT}

Views of the disease shaped treatment. While this has been excluded
from the scope of this study, it is important to note that it is a decline in the
incidence of diarrhoea that has to be explained, rather than reduced case
fatality. Dr C.A. Thelander of Brisbane judged in 1914 that medical
treatment was 'hopelessly incapable of dealing with the disease', and there is
no reason for the historian to disagree with him.\textsuperscript{57} He was referring to the
habit of purging rather than the giving of water and nutrients. My point
here is that doctors who diagnosed the problem as over feeding responded
by under feeding to eradicate the poison and ordered the mother, even if she

\textsuperscript{54}Litchfield, 'The Gastro-Intestinal Troubles of Infancy', \textit{TAMC}, 1920, discussion, p.480
\textsuperscript{55}H.O. Lancaster, 'Infant Mortality in Australia', \textit{MJA}, 1956, p.102
\textsuperscript{56}Ross Shepherd, \textit{Current Diagnosis and Management of Acute Diarrhoeal Disease and its
Consequences in Infants and Children}, Brisbane, nd (1980s), esp. p.7. Copy courtesy of Dr M.J.
Thearle
\textsuperscript{57}C.A. Thelander, 'Notes on Infantile Diarrhoea in Brisbane', \textit{AMG}, 21 Mar 1914, p.248
were breast feeding, to stop all food for 24 hours. Authorities on diarrhoea in the Third World consider that to stop food, especially breast feeding, was wrong. Some circumspection is necessary on this topic because in Australia, where babies are better nourished and able to fight infection, some authorities still recommend the practice. The usual ministrations after the 'stop food' period, however, of cold boiled water, barley or rice water to relieve the baby's thirst, followed in convalescence by the 'flourball' (boiled and baked flour, criticised by the medical profession when mothers used it) and sometimes arrowroot or tinned milks, which Dr Mitchell thought popular with mothers in the 1890s, can only have helped, provided the water was boiled and not contaminated once cool. Dr Thelander recommended 20 years later 'to stop all food, and to give water very copiously', and added that it was 'a wise concession to the mother to allow her to use barley-water or albumin water - always adding a little salt, which makes the child drink better.' These practitioners' comments suggest that some mothers already understood the importance of giving fluids and that salt aided recovery. It is possible that these doctors learnt from their patients, which returns us to the obscure world of mothers' behaviour.

PREVENTION

It emerged that public reforms were easier and domestic reform was more difficult, and the public realm was targeted first. Reformers recognised that the prevention of infant diarrhoea depended on good sanitary conditions, on clean water as well as milk, on good drainage and the disposal of rubbish and human waste. While the penchant for blaming mothers maintained the contemporary focus on the domestic realm, the

59Mitchell, 'Summer Diarrhoea of Infants', AMG, 15 Jul 1893, pp.236-7
60Thelander, 'Notes on Infantile Diarrhoea in Brisbane', p.248
argument that the home was the source of infection implicitly acknowledged that flies and dust blew in from outside. The domestic sphere could be kept free of food pollution if the public sphere put its house in order. More often, though, medical spokesmen reasoned the moralistic obverse that public cleanliness was important but useless if the home were dirty.61

Mothers rather than cesspits and other environmental abominations were held to be culpable when infant mortality rates held up, but when rates began to decline in the capital cities in the late nineteenth century authorities immediately claimed that sanitary improvements were the key. The coincidence of the fall in the infant death rate in Sydney with the spread of sewers from the 1880s, a safe water supply from 1888 and the Dairies Supervision Act, was regarded by Armstrong as 'so striking as to be convincing evidence of the casual [recte causal] relation of the one to the other.'62 Local health officers were likewise impressed by the timing of the fall in the infant mortality rate throughout Melbourne, in the 1890s, when councils startled by the panorama of filth exposed by Dr D. Astley Gresswell in his report to the Board of Public Health on the sanitary condition and administration of Melbourne and suburbs in 1890 moved to cover open drains, to halt the contamination of the water supply through seepage, low pressure and leaks in the water mains, and to clean up the disposal of sewage.63 Melbourne's infant mortality rate, recorded as a metropolitan


average as illustrated in Table 4, fell from a level of 179 in the late 1880s to below 120 by 1900.

The chronology of diarrhoeal mortality in other capitals supports this view. By the mid 1880s inner Sydney had piped water; the city was sewered by the mid 1890s, with some exceptions in low-lying slum areas that had to wait until the fear that plague conjured up in politicians resulted in limewashed and antiseptic-soaked water closets, streets, drains and rubbish. Dan Coward's research into polluted Sydney shows that the southern suburbs had water by the early 1890s and were 80 per cent sewered by 1901, while the newer northern suburbs by 1911 were served by piped water and 66 per cent sewered.64 'There seems little doubt', Lewis has deduced from the published Sydney evidence, 'that by the turn of the century, with a clean water supply established and the main sewerage systems completed, Sydney was a considerably healthier city. The mortality of the city and seven adjacent suburbs from typhoid and diarrhoea in 1889 was 34.8 and 112 per 100,000 of population respectively. In 1897, after completion of the main sewerage systems, the mortality was fifteen and seventy-one per 100,000 ... The death rate from intestinal diseases had fallen notably.'65

Public sanitation did appear to be associated at least temporally with trends in urban infant mortality as well in Adelaide and Brisbane. The big downturn in the City of Adelaide's excessive infant death rates, from a level of 189 deaths per 1000 live births in boys and 171 in girls in 1881, occurred in the 1880s when a drainage system began to take the city's effluent beyond the green belt, whereas previously the city's parkland was a sewage soak.66 The

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64Coward, Out of Sight, pp.69-71. On responses to bubonic plague, see especially pp.209-15. The insanitary state of inner Sydney in 1900 is depicted in photographs prompted by the plague, in Max Kelly, Plague Sydney 1900, Sydney, 1981
65Lewis, 'Sanitation, Intestinal Infections, and Infant Mortality in late Victorian Sydney', p.333
66Stevenson, 'Light and Living Conditions: Mortality in Nineteenth Century Adelaide', paper, ANZAAS, Jan 1979 (rates from Table XI)
urgent problem of nightsoil disposal was tackled in Brisbane from the 1870s by the drainage of swamps and burning, and by the 1880s the earth closet was in general use; the infant mortality rate fell significantly. In Perth, on the other hand, there was no hope that water supply and sanitation could keep up with the demands of the gold rushes in the 1890s. There the urban effect was exaggerated by extreme water shortages; Su-Jane Hunt and Geoffrey Bolton have disclosed that the available supply was contaminated and in the 1895-6 summer, one of the hottest for years, working-class mothers had to cope without any water at all. Water carts and pumps were introduced in districts most affected by the shortage of household water in the late 1890s, but: 'this still meant that the women and children of working class households found themselves carting tubs and buckets through the sandy, unpaved streets for up to several hundred yards, or waiting up until midnight or 1 a.m. for the sound of the water carter's bell.'

The infant death rate might have fallen faster but for the problem that sanitary improvements hardly kept pace with population growth. The first house in Melbourne was not connected to a sewerage pipe until 1897 when the system serving inner Sydney was completed; it would be 'some years into the next century', as David Dunstan has explained, 'before the inner area of the metropolis could be said to be comprehensively sewered.' Hobart, Brisbane and Perth were late to be sewered. Hobart agreed to a scheme in 1903 but by 1914 only the bulk of the houses in the city council area had been sewered, Perth commenced public works in 1906, operable in 1912, though 'even at this date ... unregenerate households [used] nothing

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69 Ibid., p.12
70 Dunstan, Governing the Metropolis, p.288
better than the old cesspits',\textsuperscript{71} and the first section of sewerage pipe was not connected in Brisbane until 1923. In 1901 the proportion of unsewered households in the Sydney statistical district was 34 per cent; the same percentage was recorded in 1956, while from 1916 to 1935 the proportion was between 22 and 26 per cent, the same as in the 1960s.\textsuperscript{72} Suburbs in the main cities retained their dependence on the nightman and the dunny until well into the second half of the twentieth century, for as long as population growth outstripped the spread of sewerage systems.\textsuperscript{73} So, too, did country towns, unsewered and of varying dirtiness.\textsuperscript{74}

It is apparent, then, that sanitary conditions, though improving, were grim. Household slops discharged directly into street gutters and stormwater drains in unsewered districts and the pressure of numbers combined with local politics and ratepayer democracy to ensure that excreta disposal remained a difficulty. Open sewers, once stormwater drains or natural watercourses, were still an acute problem in Brisbane in 1925 though the opening of the sewerage scheme promised hope.\textsuperscript{75} Nightsoil disposal remained the worst obstacle to public cleanliness. Dunstan records that on wet cold nights in late nineteenth century Melbourne an army of nightmen were accustomed to dump their load in a creek rather than the distant market garden or local authority farm; they also fouled roads en route. Indeed, municipalities complained that carts from adjacent districts or from the city smeared the territory of neighbours. This nightsoil dumping, fuelled by bickering between local councils, that was not resolved until the

\textsuperscript{71}Hunt and Bolton, 'Cleansing the Dunghill', p.15
\textsuperscript{72}Coward, \textit{Out of Sight}, Table 11.2, p.226
\textsuperscript{73}Commonwealth Year Book, 1901-14, pp.873-89; Barrett, \textit{The Inner Suburbs}, p.136; Dunstan, \textit{Governing the Metropolis}, p.288; Stuart Macintyre, \textit{The Oxford History of Australia}, vol 4, 1901-1942, p.39
\textsuperscript{74}For descriptions of country towns see R.J. Millard, 'Typhoid Fever in New South Wales, 1898-1904', \textit{TAMC}, 1905, pp.404-16; Cumpston and McCallum, \textit{Intestinal Infections}, where Millard is quoted on pp.124-5
\textsuperscript{75}Laverty, 'History of Municipal Government in Brisbane', p.400
1890s in Melbourne could have been an issue elsewhere; certainly it was in Brisbane.76

The water supply also remained dubious at the turn of the century, in the metropolitan centres as in towns, especially in summer shortages. Australia's worst drought from 1895 to 1903, the years of heat and water shortage, combined with population increase and costs to delay sewerage schemes outside Sydney and Melbourne because sewerage needed water. According to Laverty, Brisbane's water supply was not adequate till 1919.77 Without water, connected pipes were useless. Conversely, we can generalise from Dunstan's Melbourne findings and Coward's in Sydney that improvements in the water supply produced negative as well as positive results when unaccompanied by sewerage. Dunstan has described vividly how reformers complained throughout the second half of the nineteenth century about how the fire plugs (hydrants) attached to metropolitan water mains, used to extinguish fires and hose down streets fouled by manure, allowed filth to contaminate water at low pressure. Water, too, seeped into earth closets or was deliberately washed into cesspits and out into the streets.78

Adult mortality rates fell in the wake of sanitary reform; but continued high infant mortality rates, reinforced by reference to the British figures, strengthened assumptions that infant mortality was dependent on improper feeding.79 Environmental filth was downgraded as a cause to the point that it was excluded from the report of the Royal Commission on the Birth Rate.

76Dunstan, Governing the Metropolis, pp.145-6, 247, 266-8; also Dunstan, 'Dirt and Disease', pp.156-9; Laverty, 'History of Municipal Government in Brisbane', p.211
77Laverty, ibid., p.408
78Dunstan, Governing the Metropolis, pp.138, 273-5, 281, also 'Dirt and Disease', p.169. Coward, Out of Sight, gives examples of faulty plumbing, e.g. p.94
79This contemporary view is mirrored in Lewis's argument that the impact of sanitary measures on infant diarrhoea was mediated by improvements in nutrition and domestic hygiene, whereas sanitation had a more direct effect on diarrhoeal mortality rates in adults. Lewis, 'Sanitation, Intestinal Infections, and Infant Mortality ...', p.337
The Commission, which as I suggest in Chapter 2 overlapped the change from the 'old' to the 'new' public health, discussed the milk supply, but not sanitation.

Certainly the milk supply was dangerous. The problems of filthy dairies and faulty distribution nonetheless did appear soluble by public intervention compared with teaching mothers about food and domestic hygiene, which required having to grapple with their 'incalculable and unmanageable ... ignorance and carelessness', as sanitationists such as Dr James Jamieson, health officer to the City of Melbourne, argued.80

Following trends in Great Britain and the United States, New South Wales passed a Dairies Supervision Act in 1886. The Act was introduced by the infant welfare authority Dr Charles Mackellar, and required municipal councils, initially in Sydney, to keep a register of dairymen and milk shops in their districts and to strike off those with insanitary premises or diseased cows.81 The occasion had been an outbreak of typhoid fever in Leichhardt traced to a dairy that sold milk infected by sewage-contaminated water from a well.82 Victoria had no comparable act until 1905, operational from July 1906 in the metropolis and the provincial cities of Ballarat, Bendigo and Geelong.83

Reformers also battled to reform milk distribution. They alleged that milk poisoning in babies derived from its adulteration with water or

80James Jamieson, 'Twenty Years of Sanitary Progress in Melbourne', TAMC, 1905, p.427
82Polluted Milk and Enteric Fever', from the report by Dr Ashburton Thompson, chief medical inspector to the NSW Board of Health, AMG, Jun 1886, p.233, Jul 1886, pp.265-6; Lewis, 'Milk, Mothers, and Infant Welfare
83Milk and Dairy Supervision Act 1905, 5 Edw VII No 2011. Victoria did introduce some reforms in the Health Act of 1890 but Dr W.A.N. Robertson, the Chief Veterinary Officer, considered the system before 1906 'a complete failure'. Robertson, 'The Source of Our Milk Supply', The Milk Question, Melbourne, 1921, p.6
preservatives so that it might be sold more cheaply and keep for an extra
day. If milk had not soured in 24 hours it was generally accepted that some
preservative had been added. The most common was boracic acid, which
kept milk 'sweet' for 48 hours by delaying lactic acid fermentation.84 Doctors
were undecided as to whether this antiseptic was a good thing because it
delayed the growth of bacteria, or dangerous to the baby because
preservatives masked the quality of milk.85 The addition of water also
threatened the young because the water might be contaminated, or lead to
malnourishment if a mother unknowingly fed her baby a mixture that had
been watered down before she diluted it. In 1901 the Sydney City Council, at
the instigation of Armstrong, began to fine vendors for selling adulterated
milk. Of milk samples tested, 69 per cent proved to be adulterated, 59 per
cent with water and 44 per cent with preservatives, a tally which improved
with prosecution to 28 per cent by 1903, 24 per cent with water.86

Other municipal councils, however, were slow to follow Sydney's lead.
Victorian dairymen used preservatives freely until prohibited to do so by the
1905 Act. To water down milk was still common practice among
Melbourne's 1600 registered dairymen in 1908, pressed by competition to
contain the high price of their product (at about 5d a quart).87 According to
contemporaries, then, impure milk, adulterated or not, was a major
contributor to diarrhoeal mortality in the summer months, and to some

84RCDBR, vol 2, Evidence of C.P.B. Clubbe, 30 Nov 1903, qq.4409, 4414, Mrs R. Graham,
Matron, Benevolent Society Institutions, 30 Nov 1903, qq.4536-8, Dr Frank Tidswell,
Microbiologist to Board of Health, 3 Dec 1903, q.4649
85Ibid., Evidence of Sydney Jamieson, 7 Dec 1903, qq.5273, 5278-9, A. Murray Oram, 7 Dec 1903,
qq.5055, 5095; 'Preservatives in Food', AMG, 21 Dec 1903, p.572, 'Bacteria in Milk', p.575,
'BMA News ... Victoria', AMG, 20 Jul 1908, p.369, 'Infant Life Saving', 20 Nov 1911, p.682. See
also Lewis, 'Milk, Mothers, and Infant Welfare', pp.198-9
86RCDBR, vol 2, Evidence of W.G. Armstrong, 3 Dec 1903, qq.4833-9; 'BMA News', AMG, 20 Jul
1908, p.369; also 'The Adulteration of Milk', AMG, 20 Sep 1902, p.467, 'The Sydney Milk
Supply', AMG, 20 Jan 1905, pp.28-9, 20 Feb 1908, pp.85-6
87Jeffreys Wood, 'Preservation of Infant Life', IMJA, 20 Mar 1908, p.130. On the price of milk,
1901-12, see Royal Commission of Inquiry as to Food Supplies and Prices, Sectional Report,
Sydney, 1914, p.xxxv
milk campaigners, the chief source of infant deaths.88 Many dairies and vendors escaped regulation, even licensing under the various acts, which only covered certain districts.89 Before the Pure Food Act of 1908 was passed in New South Wales, Armstrong found that he had insufficient power to deal with dairies, but five years further on conditions were still not good.90 Dairymen's clothes and cows were filthy, George Saunders, secretary of the dairymen's union in Sydney, confirmed.91 Lewis has described the state of the milk supply in Sydney and there is every reason to believe that the grimy story was repeated in other states. In Adelaide in 1913, a local dairymen, Thomas Brenton, admitted that the law was too easy on dirtiness.92 In the Melbourne working-class suburb of Richmond, dairymen Paddy Maloney milked the cow into the billy brought by local children, as Janet McCalman has enlightened us, 'his hands black with grime between the fingers', standards of dirt which were probably widespread even if cowyards were cleaner than previously.93 Nor did dairymen keep the milk cool in the hot weather. This was provided for in regulations but not enforced in Adelaide; and Arthur Collett, the secretary of the Metropolitan and Suburban Dairymen's Association in Sydney, admitted that his cooler had been out of order for two years.94

The country share of the milk market grew after 1900; by 1912 69 per cent of Sydney's supply was made up of rural milk from farms on the South Coast, as far as Nowra, from Moss Vale and from the North Coast up to

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89 For details of controls on the milk supply and their coverage in each state see Commonwealth Year Book, 1901-14, pp.972-4
90 FSP, Sectional Report, Evidence of W.G. Armstrong, 3 Feb 1913, qq.220, 234
91 Ibid., Evidence of G. Saunders, Secretary, Milk & Ice Carters & Dairymen's Employee's Union, 17 Feb 1913, qq.2310-14
92 Ibid., Evidence of T. Brenton, dairymen, Clarence Park, 30 May 1913, qq.6317-18
93 McCalman, Struggletown, p.48
94 FSP, Sectional Report, Evidence of Brenton, 30 May 1913, q.6329, A.H. Collett, 14 Feb 1913, qq.2258-9
Gosford. The greater part of Melbourne's supply came from outside the metropolis by 1913 (dairymen disagreed as to whether most was transported from 40-100 miles away or within a radius of 40 miles), while in Adelaide milk was produced on average four to five miles out and delivered direct by dairymen to consumers, though some travelled 70 miles from the Murray River. This milk travelled in ten gallon cans on passenger trains in insulated cars or louvred vans, without refrigeration; it was dumped on the railway platform without shelter from the weather and arrived curdled and old. Much of Sydney's and the majority of Melbourne's milk was transported in this way and its quality can only have been uninviting.

Given these transit problems, it is not surprising that in Sydney early this century small dairies with one or two cows had the best standards. But their ubiquity in residential areas can only have exposed infants to cow dung and encouraged flies. As late as 1905 the City of Adelaide contained one cow for every ten people and one dairy for every 53 people or ten houses. The milk supply in every state, whether from the local dairyman's cows or rail freighted from outlying districts, remained impure into the twentieth century.

How much faecally contaminated milk endangered infants depended on what proportion of babies drank 'fresh' milk. Presumably the babies of the poor were not much exposed, because Australians as late as 1917 consumed on average a mere third of a pint a day, and the proportion in

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95 Lewis, 'Milk, Mothers, and Infant Welfare', p.196; sources of milk are from FSP, Sectional Report, pp.xiii, xxii
97 FSP, Sectional Report, pp.xxii-iii
98 W.G. Armstrong, 'Annual Report of the MOH ... for the Y/E 31 Dec 1898', AMG, 20 Jul 1899, p.310 (of 495 dairies inspected in Sydney only 117 were 'good', 321 'fair' and 57 'positively bad')
99 Adelaide ratios are calculated from T. Geo. Ellery, 'The Administration of the Health Act, 1898, in Adelaide', TAMC, 1905, p.432
working-class homes would have been smaller than this amount. Doctors found that some families drank no milk at all. Partly this was because of the cost, but suspicious mothers also avoided milk. In Brisbane, Jefferis Turner found that the 'fear of fresh milk for bottle-fed infants among mothers [was] very noticeable', and doctors would not prescribe it for babies even in Victoria for the warm months of the year. The effectiveness of a better quality supply of milk also depended on the degree to which mothers were breast feeding.

In New South Wales, the Birth Rate Commissioners of 1903-4 found the medical evidence 'very strong' that infant mortality was largely the result of improper feeding. Medical witnesses were united in believing that artificial feeding was on the increase, notably among the middle classes; and the Commissioners agreed with Dr S.H. McCulloch, honorary surgeon to the Women's Hospital, that this was for the same reasons as artificial methods of contraception, namely women's 'laziness or fondness for pleasure'. We do not know whether middle-class women were resorting more to the bottle.

Poor mothers used condensed milk more than any other substitute. Doctors asserted that mothers weaned babies onto starchy foods such as milk arrowroot biscuits, cornflour or boiled flour (grated from a flour ball boiled in muslin) mixed with water and bread, boiled sago, tapioca, or one of the many starch and sugar-laden proprietary foods sold by the tin, such as

100Department of Trade and Customs, Report on Infantile Mortality, 1917, p.36
101See, for example, R.J. Millard, 'Typhoid Fever in New South Wales, 1898-1904', TAMC, 1905, p.411
102A. Jefferis Turner, 'Infantile Mortality', AMG, 20 Jun 1910, p.280; Dr Edith Barrett later described how her father, Dr J.W. Barrett, 'took every child that he treated off milk until after April', 'The Medical Aspect of the Question', The Milk Question, p.388
103RCDBR, vol 1, p.40 (spelt McCulloch); vol 2, Evidence of Drs S.H. MacCulloch, 26 Oct 1903, qq.2496, 2506. Also evidence of Drs R. Worrall, 2 Nov 1903, q.3028, J. Harris, 19 Nov 1903, qq.3914-15, C.P.B. Clubbe, 30 Nov 1903, qq.4377-8, 4396, R. Arthur, 3 Dec 1903, q.4946
104Byrne, 'Infant Mortality', AMG, 20 Feb 1904, pp.57-8; E.A. Officer, Perth, 'Gastro-Enteritis in Children', AMG, 20 Oct 1908, p.539
Benger's Food or Mellin's Food, to which they added milk and water. Mothers were 'bad enough' for their purported neglect in attending to the details of a baby's diet; but the 'greatest bugbear' of some doctors was the 'ignorant' nurse, who, impervious to taste or smell, fed the newborn cows' milk which was septic, had curdled or turned green, 'kept in bad places in the hot weather', and solid foods: the baby might be given minced meat, pies or anything that was going; it might have forced upon it something unsuitable before its mother's milk arrived, from its first day of life. How many nurses and mothers there seemed to be who simply stuffed their children or charges and thought 'to quiet them with the bottle'. Even well-educated women, Dr Clubbe asserted, gave a 2-4 month old baby 4 or 5 pints of fluid a day. Food or filling could be bad in two ways, Dr Ken Herring of Shepparton, Victoria, told doctors in the New South Wales town of Goulburn in 1900: 'It may be septically bad by being stale or sour, or containing some deleterious element which acts as a poison,' he said, 'or it may be mechanically bad by being indigestible.' All these problems were exaggerated in the hot weather when bacteria multiplied in food and milk, mother and baby were tired and irritable and the baby was thirsty. The result was a baby with an upset stomach who succumbed 'in nine cases out of ten',

105 G.E. Cussen, 'Infantile Gastro-Enteritis', AMG, 20 May 1899, p.188; T.H.R. Willis, 'Pathologic Conditions in Cases of Summer Diarrhoea', AMG, 20 May 1901, p.187 and Dr Nield, p.188; C.P.B. Clubbe made a similar remark about the 'ignorant nurse' who fed the child improper food, often septic milk, in RCDBR, vol 2, Evidence of Clubbe, 30 Nov 1903, q.4396. Also J.S.C. Elkington, The Feeding and Care of Babies, Hobart, 1906. For further details on infant feeding, see Milton Lewis, 'The Problem of Infant Feeding: The Australian Experience from the Mid-Nineteenth Century to the 1920s', Journal of the History of Medicine and Allied Sciences, vol 35, no 2, Apr 1980, pp.180-2. See also the American study by Apple, Mothers and Medicine, esp. chap 1; and on Britain, Smith, The People's Health, pp.85-101
106 Phusis, 'About Nutrition', Parents' Review, vol 5, 1895, p.269
107 RCDBR, vol 2, Evidence of Clubbe, q.4430
108 E. Ken Herring, 'Infantile Diarrhoea', AMG, 20 Oct 1900, p.409
according to colloquial dictum, to gastroenteritis.109

This supposition was tested and strengthened by Dr Armstrong's surveys. In the 18 months before the Commission on the Birth Rate, Armstrong investigated the deaths of 145 babies who had succumbed to infant diarrhoea in Sydney and found that 138, or 95 per cent, had eaten some artificial food. Of 60 under three months of age who had died in 1902-5, the proportion was 93 per cent. His findings tallied with the much publicised figures of Dr Arthur Newsholme in Brighton, England, that of 121 babies in 1903-5 who had died of epidemic diarrhoea, 93 per cent were not wholly breast fed.110 They had the further effect of highlighting the proportions of babies who died after being fed condensed milk, either as a supplement or with artificial foods, including biscuits: 65 of 116 or 56 per cent of Sydney babies whose deaths Armstrong investigated in 1903, and 30 per cent of Newsholme's sample of infant deaths. The association between infant diarrhoea and artificial feeding seemed clear to everyone except Litchfield. His was a lone voice that pronounced it wrong-headed to foist all the blame on food.111

Lewis has concluded, reasonably, that 'the surveys tended to show the connection between poor nutrition and diarrhoeal conditions'.112 But poor nutrition was itself dependent on other influences, among them a hopelessly inadequate income, and current knowledge suggests, how much schooling the mother had received. As always Litchfield's scepticism offered

109The estimate is Byrne's, who added ‘... of every hundred bottle-fed babies at least 75 die before reaching the age of one year.’ AMG, 20 Feb 1904, p.56; cf. S.W. Newmayer, Director of Child Hygiene, Philadelphia, who asserted that ten artificially fed babies died for every one breast fed, 'The Warfare Against Infant Mortality', American Academy of Political and Social Science, The Public Health Movement, Philadelphia, 1911, p.292
111Litchfield, 'Summer Diarrhoea in Infants', TAMC, 1905, pp.423, 425
112Lewis, 'The Problem of Infant Feeding', p.185
the potential for insight. From a series of 242 sick babies taken from his own practice, he too found that 95 per cent of those who died from diarrhoeal disease were artificially fed. He carefully pointed out, however, that suckled infants did not enjoy total immunity; in his sample, 18 per cent of the babies who fell sick were breast fed, though this group contributed only 5 per cent of the deaths. This prompted him to look beyond feeding for reasons and to ask why mortality among artificially fed babies was lower than among the illegitimate.\(^{113}\) While the contemporary evidence did support the dominant emphasis on food, it did not prove that the link was solely with artificial feeding; the gaps warranted Litchfield's search for other sources of disease. Litchfield's isolation in his search for multiple causes was unjustified.

Contemporaries were less sure about how much infant mortality, specifically diarrhoeal mortality, derived from mothers' poor domestic hygiene. Understandably, bottles came in for strong criticism. Doctors reserved their strongest condemnation for the half pint feeding bottle with a long rubber tube, prohibited in France and recommended for banning by the Commission on the Decline of the Birth Rate because it was impossible to clean.\(^{114}\) It was already 'old-fashioned'; but they feared its popularity with working-class mothers who found it convenient to lie the child down when drinking, so that the child was neglected as well as prey to germs.\(^{115}\) In the

\(^{113}\) Litchfield, 'Summer Diarrhoea in Infants', TAMC, 1905, pp.422-3. Litchfield's figures do not add up. His sample is recorded on the same page as 224 and 242 in number. Since his categories of babies fed artificially and on breast milk total 240, 242 has been assumed to be correct.

\(^{114}\) RCDBR, vol 1, p.44. The Federal Government did not consider prohibition until 1911 and sale of the bottles was not banned in Tasmania until 1912, 'Infant Life Saving', AMG, 20 Nov 1911, p.682, 'Public Health ... Tasmania', 17 Feb 1912, p.170

early days of bacteriology it was easily established that these bottles housed many deleterious organisms, but their exact relationship to ill-health among babies was difficult to prove. A Sydney bacteriologist, Dr Sydney Jamieson, reported that in his post mortems on dead infants at Sydney Hospital he frequently inspected 'the bodies of children who have died without any medical man having seen them; and invariably ... one can ... find evidence of carelessness and neglect ... in the matter of keeping bottles clean, and using unsuitable bottles, with long rubber tubes, and abundant evidence of dirt and filth'. To Jamieson, the association of likely pathogens and ill-health was a proof of causes and effects.

The agent in this association was the mother, and the association seemed to be about whether the mother was inept. Some babies thrived in the most slovenly of surroundings. Rubbish was left about the house and yard or stored uncovered to become a breeding ground for flies instead of being burnt or placed in a covered dustbin; drains, sinks and water closets leaked or clogged, and were rarely cleaned; the interior of the house in Armstrong's words was frequent testimony to 'dirty methods of storage'; soiled nappies from a sick child were piled in a corner of the room to await a visit from the doctor to inspect their contents; mothers and nurses did not wash their hands often enough, forgetful, Jeffreys Wood warned, that 'each soiled napkin is a poisonous thing', and did not regularly change napkins or bath the baby. Everywhere a threat lurked to the baby's food: flies and dirt invaded the milk jug, the billy can at the door with money inside waiting for the milkman, and the family sugar bowl used to sweeten the mixture in the bottle. But the greatest, cumulative, danger in Jeffreys Wood's

116RCDBR, vol 2, Evidence of Dr Sydney Jamieson, 7 Dec 1903, q.5307
opinion came from the early morning feed of milk left over from the night before.\textsuperscript{118}

The Commissioners on the Birth Rate who listened to and documented these maternal inadequacies were, understandably, oblivious of the improvement in life chances unfolding around them. It was not long before the fluctuation in diarrhoeal deaths and drop in infant mortality early in the century led Armstrong and Jeffreys Wood to assume that the change was a matter of heavenly rather than human control. Perhaps, they suggested, the series of cool summers from 1903-4 was the answer.\textsuperscript{119} It could well be that the change of weather was critical, at least in the short term. But this attitude soon altered with the spread of infant welfare strategies and the continued fall in infant mortality. As Tables 6, 7 and 8 show, there was both an absolute decline in diarrhoeal mortality and a decline relative to other infections. Despite the difficulties presented by changes in classification, which are discussed in Appendix 1, there is no mistaking the remarkable downward trend. This is depicted for New South Wales in Figure 7. The tables suggest that diarrhoea remained the single worst threat to infants until the 1920s. The next chapter considers responses.

\textsuperscript{118}Jeffreys Wood, 'The Prevention of Summer Diarrhoea in Children', IMJA, 20 Jan 1908, p.39
Figure 7  DIARRHOEA AND ENTERITIS
Annual Death Rate per 100,000 of the Population in New South Wales 1875-1939

Source: NSW Department of Public Health, Annual Report of the DGPH, 1939
<table>
<thead>
<tr>
<th>Year</th>
<th>Australia</th>
<th>N.S.W.</th>
<th>South Australia</th>
<th>Tasmania</th>
<th>Victoria</th>
</tr>
</thead>
<tbody>
<tr>
<td>1891-3</td>
<td>29.66</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1900-4</td>
<td>29.52</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1905-9</td>
<td>21.06</td>
<td>(a) 15.5</td>
<td>(b) 24.62</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1910-14</td>
<td>20.64</td>
<td></td>
<td>17.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1911</td>
<td>16.99</td>
<td></td>
<td>(a) 13.4</td>
<td>(b) 16.13</td>
<td></td>
</tr>
<tr>
<td>1915-19</td>
<td>13.94</td>
<td></td>
<td>16.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1920-4</td>
<td>13.77</td>
<td></td>
<td>13.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1921</td>
<td>15.01</td>
<td>(a) 7.80</td>
<td>(b) 9.85</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1925-9</td>
<td>8.94</td>
<td></td>
<td>4.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1930-4</td>
<td>4.14</td>
<td></td>
<td>2.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1931</td>
<td>3.26</td>
<td>2.53</td>
<td>1.8</td>
<td>1.97</td>
<td></td>
</tr>
<tr>
<td>1935-9</td>
<td>1.99</td>
<td>2.06</td>
<td>0.8</td>
<td>2.24</td>
<td>1.72</td>
</tr>
<tr>
<td>1935</td>
<td>2.14</td>
<td>2.43</td>
<td>1.9</td>
<td>.82</td>
<td>1.06</td>
</tr>
<tr>
<td>1938</td>
<td>2.07</td>
<td>3.07</td>
<td>.9</td>
<td>.38</td>
<td>1.08</td>
</tr>
<tr>
<td>1941</td>
<td>1.35</td>
<td>1.01</td>
<td></td>
<td>1.49</td>
<td></td>
</tr>
</tbody>
</table>

(a) 1900-9, 1910-19, and 1920-9 respectively  
(b) 1901-10, 1911-20, and 1921-30 respectively

This table contains figures computed in relation to three different sets of time intervals, which are included for the sake of completeness.

### Table 7
**Infant Deaths from Selected Causes**  
**Australia, 1911-1944**

<table>
<thead>
<tr>
<th>Attributed Cause of Death</th>
<th>1911</th>
<th>1921</th>
<th>1931</th>
<th>1941</th>
<th>1944</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bronchitis, Broncho-</td>
<td>7.10</td>
<td>6.66</td>
<td>4.76</td>
<td>4.49</td>
<td>3.37</td>
</tr>
<tr>
<td>pneumonia, Pneumonia</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diarrhoea and Enteritis</td>
<td>16.99</td>
<td>15.01</td>
<td>3.26</td>
<td>2.07</td>
<td>1.35</td>
</tr>
<tr>
<td>Congenital Debility</td>
<td>7.64</td>
<td>2.60</td>
<td>1.98</td>
<td>1.02</td>
<td></td>
</tr>
<tr>
<td>Prematurity</td>
<td>22.41</td>
<td>15.29</td>
<td>14.04</td>
<td>12.41</td>
<td>10.32</td>
</tr>
<tr>
<td><strong>Total all Causes</strong></td>
<td><strong>68.49</strong></td>
<td><strong>65.73</strong></td>
<td><strong>42.14</strong></td>
<td><strong>39.72</strong></td>
<td><strong>31.34</strong></td>
</tr>
</tbody>
</table>


### Table 8
**Infant Deaths from Certain Causes**  
**Victoria, 1890-1950**

<table>
<thead>
<tr>
<th>Attributed Cause</th>
<th>1891-3</th>
<th>1901-10</th>
<th>1911-20</th>
<th>1921-30</th>
<th>1931-40</th>
<th>1941-9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epidemic, Endemic and Infectious Diseases</td>
<td>12.41</td>
<td>7.31</td>
<td>4.87</td>
<td>3.57</td>
<td>2.51</td>
<td>1.23</td>
</tr>
<tr>
<td>Bronchitis, Broncho-pneumonia, Pneumonia</td>
<td>11.37</td>
<td>8.13</td>
<td>6.86</td>
<td>6.08</td>
<td>5.58</td>
<td>3.84</td>
</tr>
<tr>
<td>Diarrhoea and Enteritis</td>
<td>29.66</td>
<td>24.62</td>
<td>16.13</td>
<td>9.85</td>
<td>1.98</td>
<td>1.31</td>
</tr>
<tr>
<td>Wasting Diseases</td>
<td>22.24</td>
<td>12.74</td>
<td>13.09</td>
<td>6.77</td>
<td>2.30</td>
<td>0.73</td>
</tr>
<tr>
<td>Prematurity</td>
<td>13.13</td>
<td>14.99</td>
<td>15.17</td>
<td>15.34</td>
<td>12.40</td>
<td>9.69</td>
</tr>
<tr>
<td>Malformations</td>
<td>3.45</td>
<td>4.86</td>
<td>4.38</td>
<td>4.43</td>
<td>4.29</td>
<td>3.75</td>
</tr>
<tr>
<td>Injury at Birth</td>
<td>3.45</td>
<td>4.86</td>
<td>4.38</td>
<td>4.43</td>
<td>4.29</td>
<td>3.75</td>
</tr>
<tr>
<td>Early Infancy</td>
<td>21.51</td>
<td>12.77</td>
<td>7.98</td>
<td>3.42</td>
<td>4.39</td>
<td>3.30</td>
</tr>
<tr>
<td>Other Diseases</td>
<td>4.42</td>
<td>2.58</td>
<td>1.77</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Violence</td>
<td>3.16</td>
<td>2.47</td>
<td>1.07</td>
<td>.80</td>
<td>.83</td>
<td>.75</td>
</tr>
<tr>
<td><strong>Total all Causes</strong></td>
<td><strong>116.93</strong></td>
<td><strong>87.89</strong></td>
<td><strong>69.55</strong></td>
<td><strong>57.25</strong></td>
<td><strong>40.11</strong></td>
<td><strong>29.69</strong></td>
</tr>
</tbody>
</table>

Sources: *Reports of the Director of Maternal, Infant, and Pre-School Welfare; Victorian Year-Book, 1950-1, p.540*
PART II: MOVEMENT
CHAPTER 4
COUNTERATTACK
The Beginning of the Baby Health Movement

Mothercraft and health visiting flourished with the fall in infant mortality rates and in the birth rate. So did the new science of paediatrics, whose raison d'être was infant feeding. Indeed diarrhoea incited an industry of preoccupation with the bowels. The earlier transition propelled the concern with the public child. Baby weighing had its origins in Germany in the 1870s, Copenhagen became renowned for its model dairies, health officials in large English towns and North American cities issued handbills of rules for babies. Evangelistic missionary women, active as 'lady visitors', bible in hand, in philanthropy and the temperance movement, began to professionalise in England and the colonies from the 1890s, with municipal corporations in Britain paying for the services of lady inspectors and health visitors. The result, in the twentieth century, of all this saving, coupled with sanitary reform, was the baby health movement. This did not take off, however, until the losses of the Great War stirred administrators to try to repair the wastage.

ORIGINS

The smaller families of the 1890s opened the way for the 'brave new age of strict infant routines.' The rules of infant nurture, which exhorted mothers to breast feed and to bottle feed safely, to practise regularity and cleanliness, were designed to stop preventable mortality through obedience

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1 Apple, Mothers and Medicine, p.23
3 Smith, The People's Health, p.94
to science and its aids, the spring-balance scales and the clock. In Australia, the models for the baby health movement had their beginnings about 1890 in France, the United States and Britain. These exemplars shared the common purpose of reducing infant mortality from diarrhoea (and from tuberculosis), by breast feeding and by the safe supply of infants' milk.

The French were early shapers of the new routines and of the institutions that conveyed the mission to save lives. Motivated by concern about the fall in the birth rate, French paediatricians supplied the *consultation des nourrissons*, or infant health consultation, ancestor of the baby health centre, and *goutte de lait*, or milk depot. Dr Pierre Budin, Professor of Obstetrics at the Charité Hospital in Paris, opened his first *consultation* in 1892, as an out-patient clinic for poor mothers where their babies could be examined and their weight recorded. Budin became famous for his advocacy of breast feeding. The *goutte de lait*, associated with the name of Dr Leon Dufour, its progenitor in the provinces, at Fécamp, in 1894, also opened in Paris in 1892. Although the milk depot became identified with the provision of a daily supply of sterilised milk for artificially fed babies, it shared the *consultation*'s emphasis on breast feeding and supervision by a doctor until the age of two, and the object of reducing the infant death rate from improper food. The hallmarks of the French system, then, were breast feeding, sterilised milk, and medical supervision.

The Americans, on the other hand, were the foremost advocates of infant feeding by prescription, a major component of the idiom of 'scientific feeding' which was directed first of all at infant diarrhoea. American paediatricians played a dominant role in the story of how diarrhoea gave us

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the four-hourly feed, and modern infant feeding formulae. Dr Thomas Morgan Rotch, the first Professor of Paediatrics at Harvard University in the United States from 1888, and Dr Luther Emmett Holt (1855-1924), appointed in 1901 Professor of Diseases of Children at Columbia University's [Presbyterian] medical school in New York, whom Apple has described as the 'Boston school', were the leading figures. Holt was head of the New York Babies' Hospital from 1889-1923. A New England puritan, he earned an international reputation for his textbooks on *The Care and Feeding of Children*, written as a catechism for nurses and mothers, which went through 75 printings from 1894, and the medical text *The Diseases of Infancy and Childhood*, first published in 1896, that became the standard reference for doctors and students in English-speaking countries. Holt was the predecessor of Dr Spock; and his success extended the relevance into the twentieth century of Stone's assertion that the most popular childrearing books were written by puritans.

It would be Rotch and Holt who publicised and presented to the English-speaking world from the 1890s, and thus to Australian infant health leaders, and the New Zealander, Dr Frederic Truby King, the acclaimed scientific solution to diarrhoeal diseases, in the form of the percentage modification of milk. This became known as percentage feeding or humanised milk, because the method demanded that cows' milk be diluted with water, and sugar added, to approximate as closely as possible the percentages of protein, fat and sugar provided by nature in mother's milk. The main purpose of humanising cows' milk was to prevent constipation

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5Apple, *Mothers and Medicine*, p.29
7Stone, *The Family, Sex and Marriage in England*, p.175
and diarrhoea by reducing the amount of protein to the human standard.\footnote{8} The method embodied the latest nutritional teaching at the end of the nineteenth century, on the five 'proximate principles' of foods, of which the main three were protein, fat and carbohydrate.\footnote{9} Its precedents dated from the late eighteenth century.\footnote{10}

Rotch first published his analysis of the percentage composition of cows' milk vis-à-vis human milk and his recipes in the United States in 1889, in the *Archives of Pediatrics* and in John Keating's *Cyclopedia of Diseases of Children*. He followed these in 1895 with his epochal work on paediatrics, which in Dr Truby King's view heralded the beginning of serious attempts to introduce 'scientific precision and definite system' into artificial feeding.\footnote{11} Even before his book appeared his method featured in the *Australasian Medical Gazette* in Sydney, in 1894.\footnote{12} Rotch became famous for his diagrams of a baby's stomach, the size of which was his measure of how much food that a baby ought to digest at its age and weight.

Neither mother nor baby knew what was best for the infant, he believed, even when the mother nursed her offspring in the natural way. By 1890 it had become a mistake to feed on demand. Rotch declared that women who fed on demand fed their babies irregularly and too often,

\footnote{8}Rotch, 'The Essential Principles of Infant Feeding', pp.349-50. Rotch's method was also discussed by Philip Muskett, in *The Feeding and Management of Australian Infants in Health and Disease*, 5th ed, Sydney, 1900, p.220\
\footnote{9}Dorothy F. Hollingsworth, 'Developments Leading to Present-Day Nutritional Knowledge', in Derek Oddy and Derek Miller (eds), *The Making of the Modern British Diet*, London, 1976, p.191\
\footnote{10}Among them, in England, was Dr A.V. Meigs's cream mixture, of cream, water, lactose and lime water, which Dr Stawell in Melbourne thought similar to Rotch's "humanised milk" of 1889. R.R. Stawell, 'Infant Feeding by Prescription with a Note on Milk Laboratories', *IMJA*, 20 Sep 1899, p.458\
\footnote{12}Editorial, 'Diet of Infants: A Reply', *AMG*, 15 Jun 1894, p.206
transforming good milk into a noxious fluid 'entirely unfitted for the infant's powers of digestion.'\textsuperscript{13} This point is important for all subsequent interpretations of the infant welfare movement's effectiveness. Led by these American prophets, infant health leaders asserted that demand feeding resulted in over feeding and lowered the baby's resistance to disease: and the answer was a timetable. Infant nurturing routines until the Great War prescribed two-hourly feeding in the first month, increasing to three-hourly by the sixth month, rather than the three or four-hourly feeding from birth that would characterise the mothercraft manuals from the 1920s to the 1940s.\textsuperscript{14}

Unlike the Americans, the French placed cleanliness ahead of indigestion and rested content with sterilised whole milk in substitute feeding. The Americans, on the other hand, insisted on providing a safe milk for bottle fed babies that was both modified and sterilised. To this end, United States milk reformers established milk stations to supply sterilised, humanised infants' milk. Rotch has been credited with the idea of milk laboratories for the manufacture of modified milk to doctors' orders, which materialised in the form of the Walker-Gordon milk laboratories, established in the 1890s in Boston and New York.\textsuperscript{15} Convinced that milk laboratories were necessary in Australia, Dr Philip Muskett promoted them in the 1890s, with the result that the Fresh Food and Ice Company in Sydney and the Willsmere Dairy in Melbourne dispensed milk prescriptions to doctors for their private patients, but the expense precluded any provision

\textsuperscript{13}Rotch, 'Notes on Infant Feeding', p.481
\textsuperscript{14}E.g, see Rotch, \textit{Pediatrics}, 1901 ed, p.188. Again there were earlier precedents for timetabled feeding, the most cited being Dr Thomas Bull, who advocated four-hourly feeding, Pat Jalland and John Hooper (eds), \textit{Women from Birth to Death: The Female Life Cycle in Britain 1830-1914}, Brighton, England, 1986, p.204
for the poor.\textsuperscript{16} Milk stations in the United States correspondingly proved too expensive to be a charitable service and from 1908 turned to the education of mothers as their goal.\textsuperscript{17}

The third and foremost model for the Australian (and New Zealand) infant welfare schemes came from England. Where the American and the French systems centred more on the medical practitioner, the English gave a special place to the lady health missionary, as health visitor and nurse. In the 1890s, health societies founded schools to train their lady health missioners, and nurses took up professional visiting as district nurses, or were appointed lady sanitary inspectors in the bureaucracies that were modernising with public health acts. The visitor and the better qualified lady sanitary inspector, who was usually a nurse, equipped with whitewash and carbolic, checked on cleanliness and fresh air and advised on infant feeding; in short, these new professional women preached environmental sanitation and 'domestic hygiene'. From the early 1900s, they both visited homes and staffed the new educational institutions, the schools for mothers, of which the St Pancras School for Mothers, established in 1907, was the most famous.\textsuperscript{18}

This missionary didactic ideal was not solely English. In France and the United States, social feminists and women philanthropists joined the campaign to prevent infant mortality, as lady inspectors, visitors, and volunteers who weighed babies. Klaus has described these women in the United States as 'activists with a mission'.\textsuperscript{19} Nor was the missionary model

\textsuperscript{16}Muskett, \textit{Feeding and Management}, 1900, p.225; on the expense of milk prescriptions, see H. Douglas Stephens, 'Some Impressions of Pediatric Work Abroad', \textit{IMJA}, 20 Jan 1908, p.13
\textsuperscript{17}On the United States, see Klaus, 'Babies All the Rage: The Movement to Prevent Infant Mortality in the United States and France, 1890-1920', pp.97-8
\textsuperscript{18}On the distinctions between visitor and inspector, and their duties, see Davies, 'The Health Visitor as Mother's Friend', pp.39-58; on duties, Smith, \textit{The People's Health}, pp.114-15; McCleary, \textit{The Maternity and Child Welfare Movement}, pp.8, 25-7; on the St Pancras example of schools for mothers, Davin, 'Imperialism and Motherhood', pp.38-43
\textsuperscript{19}Klaus, 'Babies All the Rage', pp.129, 154-77 (quotation from p.177)
entirely feminine; but it remains true that the nurse, especially the visiting nurse, was seen as the messenger who conveyed the gospel of health to the multitude. In Australia, British missioner models inspired such sources of origin of the Victorian baby health centres as the Melbourne District Nursing Society, whose nurses tended the sick reputable poor, and the Australian Health Society, which also targeted the respectable poor and the 'ruler of the home', and sent its 'sanitary alphabet' into schools.20

Another type of nurse, the nursery nurse, or nanny with some infant feeding and kindergarten training, also appeared from about 1890 in England and the United States, when institutes opened for her instruction. The earliest and most famous were the London Norland Institute and Holt's Practical Training School for Nursery Maids in New York; by 1908 there were said to be three training centres in England and two in New York which trained nursery nurses in the scientific care of children. An 'educated girl', but not a trained nurse, the nursery nurse ministered to the offspring of well-to-do women.21 Influenced by Truby King's adaptation of this model at the Mothercraft Training Centre in London in 1918, she would become the mothercraft nurse of the 1920s and 1930s, employed by feminine enthusiasts to care for well babies in private homes. Initially, however, the new health missionaries ventured forth to supplant superstition and old-fashioned ideas with modern scientific truths in the homes of the working classes, whose infants contributed disproportionately to mortality.

BEGINNINGS

In Australia, the first wave of the baby health movement belongs to the period 1904-1914. It is often considered to have had its beginning in Sydney

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20 MDNS, Minutes of Annual Meetings, 17 Feb 1885 onwards, After Care Hospital, Collingwood; Dunstan, 'Dirt and Disease', pp.159-62 [on the Australian Health Society]
in December 1903, during the hearings of the Royal Commission on the Decline of the Birth Rate and a fortnight before women voted for the first time in a Federal election, when Dr W.G. Armstrong, Sydney’s City Health Officer and Medical Officer of Health to the Metropolitan Combined Sanitary Districts, posted a pamphlet to all households in the poor and thickly populated areas of the inner city where a birth had been registered in the past six months. Armstrong, during his study tour of Europe in the 1890s, saw personally the work of Budin and Dufour in France. He was in England, too, in 1894-5, just as schools for health visitors were opening and city councils were beginning to pay for their services.

Armstrong drew on the French and English models in emphasising not the milk depot, but the education of mothers in Sydney. In practice, his scheme owed more to the English lady sanitary inspector, who best fitted the British institutions adopted in Australia, with which he worked under the British-styled New South Wales Public Health Act. He was appalled that the number of babies who died from diarrhoea every year exceeded the total of victims of the plague that terrified Sydney from 1900; even allowing for under-reporting, in the city and suburbs in 1901 alone, 515 infants and 611 children under five died from diarrhoeal diseases, 75 per cent and 89 per cent respectively of the 683 registered diarrhoeal deaths in people of all ages. The under-stated toll in infants under one for 1901-3 stood at 1728.

Armstrong's pamphlet contained the rudiments of the counterattack against summer diarrhoea. True to its English antecedents, it instructed mothers that the 'best safeguards' were 'cleanliness of the house and yard, of

22The Act was consolidated in 1902, in response to the plague scare.
23Sydney’s City Health Officer had already distributed handbills about tuberculosis and snake bite. Metropolitan Combined Sanitary Districts, Annual Report of the MOH, 1901, p.3, 1903, p.15, 1904, pp.14-15, 'The Health of Sydney', AMG, 20 Jul 1905, p.348; RCDBR, vol 2, Evidence of Armstrong, 7 Dec 1903, q.5157A. Philip Muskett, the popular Sydney manual writer, had urged the NSW Government to issue printed instructions in Feeding and Management, 1900, pp.xi-xiii

the children themselves, and of their food'. Mothers should keep the house 'freely ventilated', burn all possible refuse 'at once behind the kitchen fire', and put the rest in a covered bin. Drains, sinks and water closets had to be kept clean 'by frequent flushing with water', food, and especially milk, kept clean and cool, and away from flies, and it was 'safer to boil all milk as soon as it comes into the house.' Breast feeding, until seven months, came second on the list to cleanliness. If the child had to be weaned, Armstrong advised modified fresh cows' milk, 'prepared so as to resemble mother's milk as closely as possible', that is, diluted with water and sweetened. On no account were mothers to give farinaceous food, 'bread, arrowroot, cornflour, rice, &c., until the teeth appear', because these were 'apt to cause diarrhoea'. The pamphlet advised mothers to discard condensed milk and the 'usual' long tube feeder, to feed at regular intervals, to reduce the food intake of an infant with indigestion, remove dirty nappies from the room immediately and call a doctor if the baby fell severely ill. This was excellent advice, with the possible exception, depending on circumstances, of reduced food where the infant was fretful. We have no way of knowing how many people heeded it.

The New South Wales movement proper dates from May 1904, when Armstrong initiated home visiting by the City Council's lady sanitary inspector, Miss Margaret Ferguson. In addition to her other duties, of checking the sanitary state of houses and reporting nuisances, she urged mothers to be clean and to breast feed, leaving a copy of Armstrong's handbill at every house. By December Miss Ferguson had made 1414 visits to mothers and babies in 911 houses. In 1903-4, reported infant diarrhoeal deaths (excluding 'atrophy' and 'marasmus') in the city dropped from 591 to

431, while within the city boundaries the infant mortality rate fell from 147 to 118 per 1000 live births.臂

Infant mortality was indeed lower in the City of Sydney in 1904, and in 1905; however the pattern prevailed throughout the metropolis. In fact, the fall was more pronounced outside the Sydney metropolitan area. Armstrong was exasperated at the time that this thwarted his hopes of measuring the impact on the infant death rate of Miss Ferguson's visits. Outside the city boundaries, infant mortality rates halved in working-class Darlington in 1904 from 161 to 81 and in Erskineville from 182, the equal highest rate in 1903, to 92 deaths per 1000 live births. Of the 41 municipalities in metropolitan Sydney, 27 recorded diminished infant mortality, while privileged Vaucluse, overlooking the harbour, returned in both 1903 and 1904 a death rate of zero. Further afield, but included in the combined sanitary districts under Armstrong's care, three additional municipalities, including Bankstown, recorded a fall, while another four showed no improvement. The overall metropolitan rate declined from 116 to 99 per 1000 live births, never again to rise above 100.臂

Armstrong's frustration evaporated with the spread of health visiting. He declared 35 years later that his 'Town Hall' scheme had coincided exactly with a 'pronounced and sudden fall in the infant mortality rate' of New South Wales, but paused to admit that the fall affected rural areas and all states, when Sydney alone had instituted a special campaign. Armstrong credited some of this sudden decline to sanitary reform and to improved standards of living. Nonetheless, he repeated that 'though one may have

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臂This total is exclusive of the 320 recorded deaths from developmental diseases which included atrophy and marasmus, in 1903, Armstrong, Report, 1903, p.14. Diarrhoea and enteritis alone accounted for 40 per cent of infant deaths, a total that would have risen above 50 per cent had some wasting and convulsion deaths been included. On under-reporting of diarrhoea, see chap 3. Later Armstrong recorded Miss Ferguson's appointment as July.

臂Armstrong, Report, 1903, p.3, 1904, p.4
doubts as to whether the whole of the fall was due to this action, one cannot escape from the belief that it had a powerful share in it'; specialised campaigns in all states, it 'will not and cannot be denied', had lowered infant mortality, as they had in other countries: the 'progressive education of the mothers was, of course, the dominant factor.27

Further moves followed in Sydney and in other states. In 1906, the Benevolent Society of New South Wales organised a consultation for infants on the French model attached to the new Royal Hospital for Women in Paddington, and in 1908 opened an outdoor infants' department at its Hospital for Infants, where babies were examined and weighed and checked at home by a visiting trained nurse. This idea was copied by the consultation for infants which in 1909 despatched trained nurses on home visits. Since 1905, at least, the Benevolent Society's outdoor department had supplied milk to needy mothers and babies, but it could not afford to open a milk depot to supply pasteurised milk on the French or American plan, newly adopted in England. Instead it relied on the philanthropy of members, one of whom donated 25 cases of condensed milk, which was easier to distribute than the fresh article.28

The National Council of Women were the first to attempt an infants' milk dispensary for Sydney, as part of the work of the Alice Rawson School for Mothers. This opened in the workers' suburb of Darlinghurst in 1908. This first effort failed because of inability to secure good quality milk at a price mothers could afford to pay. Nonetheless the Alice Rawson School survived to become, with Armstrong's health visiting, the foundation of the New South Wales baby clinics. The School was named for Alice Rawson, the Governor's daughter, instead of her mother, who had died.

28 Benevolent Society of NSW, Annual Reports, 1905, pp.13, 30, 1906, pp.6, 10, 1908, p.15, 1909, pp.8-9
Many infant saving institutions in Australia, dedicated to the strengthening of the Empire, were named after the 'governor's lady'.\textsuperscript{29} The School's slogan, to 'save the children for the nation', captured the progressive reformist interest in the child, that well-to-do women pursued in their voluntary charitable work. Its aim was to found schools for 'educating mothers in the care of their infants'. Miss Alice Friend, the School for Mother's honorary secretary, made clear her judgment that educated women performed this task better than doctors.\textsuperscript{30}

In 1906, the minuscule Tasmanian Department of Public Health (modelled on New Zealand's) issued a pamphlet, penned by its first head and propagandist, Dr J.S.C. Elkington, \textit{The Feeding and Care of Babies}, imparting advice similar to Armstrong's.\textsuperscript{31} In South Australia, Dr Thomas Borthwick, Medical Officer to the Adelaide City Council, issued printed instructions in 1907 after hearing Armstrong speak at the Australasian Medical Congress, while a nurse visited babies in the poorer inner city areas six weeks after birth for a two year period, until her services ended in 1912. Although medical contemporaries accepted that the fall in infant mortality in Adelaide came too early to be due to the nurse's visits, they gave some credit for the continued decline to the pamphlet, and to the nurse they attributed the stability of the inner city's infant death rate. This stayed constant at 98 deaths per 1000 live births for the two years of her inspections, when rates in adjacent municipalities were rising.\textsuperscript{32}

\begin{itemize}
\item \textsuperscript{29}This custom itself originated in the English philanthropic model where titled patronesses attracted funds and women's voluntary work. On its precedents in Australia, see Elizabeth Windschuttle, "Feeding the Poor and Sapping their Strength": The Public Role of Ruling-Class Women in Eastern Australia, 1788-1850', in Windschuttle (ed), \textit{Women, Class and History: Feminist Perspectives on Australia 1788-1978}, Melbourne, 1980, pp.61-2
\item \textsuperscript{30}ARSM, 'Save the Children for the Nation', nd, 4th Annual Report, 1911-12; G.J. [Grace] Boelke, Quinquennial Report for 1919. Public Health Standing Committee, vol 48X, NCW of NSW Papers, ML MS 38
\item \textsuperscript{31}J.S.C. Elkington, \textit{The Feeding and Care of Babies}, Hobart, 1906
\item \textsuperscript{32}F.S. Hone, 'Infantile Mortality', AMG, 13 Jul 1912, pp.30-1. Armstrong impressed Borthwick at the Australasian Medical Congress in Adelaide in Sep 1905. For further details of Borthwick's scheme, see K.I. Smith, 'A Family Affair: The School for Mothers Institute
As in New South Wales, the real success of the infant welfare movement dated from the establishment of a school for mothers. Dr Helen Mayo (1878-1967), an authority on vaccines and the first woman to graduate from the University of Adelaide with an MD, initiated the Adelaide School for Mothers in September 1909, and consequently rose to be South Australia's equivalent of a director of infant welfare in the 1920s. Mayo had entered general practice in 1906 after postgraduate work in London, Dublin and Delhi, and specialised in women's and children's illnesses. Her interests, that were expected of women doctors, led her to become acquainted with the infant welfare work of Budin and at Huddersfield in England. These formed the subjects of her reading for a conference paper in May 1909. Later that year, Mayo and a friend, Harriet Stirling, a visitor to boarded out children, attended a meeting at the home of Mrs Napier Birks, whose brother told the women about his work with the St Pancras School for Mothers in England. Enthused, the 'bustling' Dr Mayo launched, with Stirling, the Adelaide School, which held mothers' meetings and engaged a nurse to weigh babies weekly in a room in the Franklin Street Kindergarten. From its inception, the Adelaide School for Mothers aimed 'to promote the education of the Mother in all that concerns the physical, mental and moral development of herself and her offspring.'

In Victoria, the Women's Christian Temperance Union opened a School for Mothers in Richmond in 1911, McCalman reports, with lectures from Dr Isabel Younger (Ross), future founder of the first Victorian baby
health centre. The outcome of the school is unknown; it cannot have continued for long, or reports would have survived. Victoria's early movement was characterised more by the milk depot. This took the form of the Lady Talbot Milk Institute, named for the Governor's wife, established (in name only) in 1908. The Institute's aims illustrated the movement of ideas from milk to mothers. Indeed they embodied both, with their educational emphasis on the care and feeding of infants, especially on breast feeding, as well as on the supply of safe infants' milk: to control the cows' milk used in bottle feeding, to distribute milk on a charitable basis, supply pure milk for families prepared to pay, and provide visiting nurses were all part of the depot's brief. At first the Victorian Branch of the British Medical Association asserted that it was the medical fraternity's idea to establish a model dairy to supply pure milk for infants to the Women's Hospital, Children's Hospital and other approved places. The doctors declared that they solicited, and won, the patronage of Lady Talbot. Once the work of the Institute was criticised by the government for wasting money and being dirty, however, doctors active in the milk reform lobby insisted that she had acted independently of them.

First to benefit from 'Talbot milk' in the hot months of December to April were the working-class families of Fitzroy, Collingwood and Richmond, who paid according to means. In accordance with its goals, the Institute also provided pure milk for the babies of the better off, whose parents could afford the full price, of 4d a pint. This was 60 per cent more

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35McCalman, Struggletown, p.50
36FSP, Sectional Report, Evidence of Jeffreys Wood, 13 May 1913, q.5987; Anthea Hyslop, 'The Social Reform Movement in Melbourne, 1890 to 1914', PhD, La Trobe University, 1980, pp.236-7
than the 2 1/2d that people paid for the ordinary unbottled milk from the dairy. Talbot milk was bottled and came with an ice chest; ice blocks cost an extra penny a day. Two visiting nurses instructed mothers in infant feeding, and exhorted them not to wean in the hot weather (they inspected homes to ensure that the ice chests were not used for beer). The Institute began distributing milk in January 1909 that was pasteurised as well as bottled, but its prominent physicians, Drs Jeffreys Wood and J.W. Barrett, soon gave up pasteurisation in favour of raw, tuberculin-tested milk, provoking a row among milk reformers.38

Brisbane likewise first attempted a milk depot, inspired by Dr Alfred Jefferis Turner. Influenced by Pasteur and Lister in his reading, Jefferis Turner struggled against the vicissitudes of a bad milk supply in Brisbane to open the Lady Chelmsford Milk Institute in 1908. Again, the institution was named for the State Governor's wife. In an attempt to sort out any problems before Queensland's heat took its effect, the Institute started its deliveries in the cool months. Jefferis Turner insisted on pasteurised milk because he thought that not to pasteurise was too risky. There was no model dairy to be found, so Turner organised for milk to be obtained from two dairies, the best that he could find in the circumstances, whose milk the Lady Chelmsford Institute pasteurised and kept in cold storage.39

On the opposite side of Australia, infant life protectionists active in women's organisations founded a Children's Protection Society in Perth in 1906. Its concerns were those given institutional form elsewhere in the 1890s, of baby farming and neglect; the education of mothers awaited a later period. Perth's women's organisations, including the National Council of Women and Women's Service Guild, agitated instead from 1909 for a

39'The Lady Chelmsford Milk Institute in Brisbane', AMG, 20 Nov 1909, pp.622-4
maternity hospital for married as well as unmarried mothers - the King Edward Memorial Hospital, the state's midwifery training school. Their rhetoric, of educating mothers to the 'moral guilt of denying to their offspring the natural nourishment', however, was the same as in the east.40 But there were no simple relationships between these organisations and a fall in infant mortality; Western Australia shared in the fall in the infant death rate across Australia, although it had no school for mothers and no baby health centre until the 1920s. In practice, in most states mothercraft operated from the time the noun was invented around 1910, and more so, from the Great War.41

CONFLICTING INTERPRETATIONS

As the movement grew between the wars, it became more common for the timing of these first ventures into infant welfare and of the transition in the infant death rate to be described as coincident, and for the supposed temporal relationship between the fall in infant mortality and the rise of mothercraft institutions to be strengthened into one of cause and effect. In Australia this tradition started in New South Wales, where the dip in infant mortality in 1904 appeared to be contemporaneous with the movement's beginnings. Armstrong himself asserted for the first time in 1906 that his 'special measures' were instrumental in reducing the infant diarrhoeal mortality rate in the City of Sydney to a level below that in the metropolis, although the overall infant mortality rate remained higher in the city.42 He said the same thing from 1909 about the working-class suburbs immediately

40 Annette Davis, 'Infant Mortality and Child Saving: The Campaign of Women's Organizations in Western Australia, 1900-1922', in P. Hetherington (ed), *Childhood and Society in Western Australia*, pp.161-73
41 Dwork reports that the word 'mothercraft' was invented in 1910 by Dr John Sykes, Medical Officer of Health for St Pancras, who helped found the St Pancras School for Mothers in 1907. *War is Good for Babies*, p.145. Davin found her earliest reference to the word, also by Sykes, in 1911, Anna Davin, 'Imperialism and Motherhood', *History Workshop*, Issue 5, Spring 1978, pp.39, 63
42 Armstrong, *Report*, 1906, p.16
surrounding the central business district - Redfern, Darlington, Newtown, Glebe and Alexandria - and further afield in Waterloo, North Botany (Mascot) and Botany, once health visiting extended to these districts.

In April 1909 Mrs Blanche Day, formerly a visitor for the State Children's Relief Department, was appointed to Armstrong's staff to walk these suburbs for the Department of Public Health. In October 1911 Miss Ferguson resigned, to be replaced, about 1912, by nursing sister Miss C.M. Burne. Pressed by other duties to make but one visit to each new baby, Armstrong's two lady sanitary inspectors joined forces with the Alice Rawson School for Mothers in 1910, whose visiting nurses made follow-up calls to mothers who were bottle feeding. The two initiatives merged in August 1914 under the auspices of a state Labor government, spurred on by Fred Flowers, a Minister of Public Health of some verve, who sought a universal free health service and set about reforming hospital and medical services. With a government takeover of the Alice Rawson Schools, by then three in number, in Alexandria, Newtown and Darlinghurst, the Schools and Sydney's health visiting scheme underwent a transformation into Australia's first baby clinics. The first, the Alexandria clinic, opened in August in a terrace in Henderson Road.

In 1905 the New South Wales Official Year Book was silent about Armstrong's service. By 1915, the government statistician declared the improved infant mortality rate in the metropolis to be 'partly due' to the efforts in Sydney to educate mothers. This passed without comment until 1922, when Armstrong's successor as Medical Officer of Health, Dr J.S. Purdy, rebuked the statistician for using the word 'partly' to describe the effect on

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44 C.M. Burne, 'Health Visiting Among Mothers of New-Born Infants', NSW Dept of Public Health, Report of DGPH, 1913, p.44
45 For a portrait of Flowers, see Bede Nairn, 'Fred Flowers', ADB, vol 8, 1891-1939, pp.528-30
46 Department of Public Health - Division of Maternal and Baby Welfare, Papers Relating to the Alexandria Baby Health Centre, 1914-41, 2/8564.3, AONSW
the 'remarkable reduction' in Sydney's infant mortality rate. Without wanting to minimise the effect of better sanitation, cleaner water and milk, Purdy insisted that the great fall in infant mortality 'synchronize[d] with the crusade which has been almost universally preached and the work undertaken to secure the better feeding and nurture of infants' - work that included Purdy's aid to his friend Truby King in New Zealand, when as District Health Officer for the city of Auckland in 1908 he had installed Auckland's first Plunket (infant welfare) nurse in rooms beneath his own.47 From the mid-1920s, the adjective 'partly' was replaced by 'due in a large degree' to health laws and education in mothercraft.48

The view that the movement was a spectacular success drew its strength at the time from the alleged proof that Armstrong provided in the form of statistics of increased breast feeding among mothers and babies visited. Even before Mrs Day set out to inspect the suburbs surrounding the inner city, Armstrong's figures for Miss Ferguson's visits in central Sydney showed a 'progressive diminution in the infantile mortality rate corresponding to the increase in the percentage of mothers suckling their infants.'49 The percentages wholly breast fed among babies seen by a nurse inspector rose from 72% in 1904 to 85% in 1912, to 94% in 1914. At the same time, the infant mortality rate fell from 116 to 68 deaths per 1000 live births.50 This piece of evidence is now standard in the secondary writings on the infant welfare movement in Australia.51 It provides one basis of Lewis's support for this older interpretation. Having identified 1900-1914 as

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48 NSW Official Year Book, 1925-6, p.164, 1935-6, p.397, 1945-6, p.79
49 'Infant Life Protection', AMG, 21 Dec 1908, p.676
50 Armstrong, 'The Infant Welfare Movement in Australia', pp.643-4
the 'great turning-point' in the infant mortality curve in Sydney, he posited Armstrong's advisory service, with its emphasis on breast feeding and domestic hygiene, as the new element and, furthermore, the mechanism underlying the fall in the infant mortality rate early this century.52

However there are difficulties with this interpretation, which have begun to attract comment. Kociumbas has queried Armstrong's case for increased breast feeding, noting that the age at which nurses saw babies changed, and concluded that health visiting in Sydney had no noticeable impact on the downward trend in the infant mortality rate.53 There is therefore a need to review the evidence. Armstrong himself acknowledged that with the passing of the Federal Labor Government's Maternity Allowance Act in October 1912, nurse inspectors visited babies earlier, because parents hastened to register their children's births in order to claim the £5 allowance. Whereas babies were inspected, on average, at age 5.3 weeks up to 1912, the average age of the newborn visited in 1913 was three weeks, and in 1914, 2.3 weeks. Nurse Inspector Burne reported the average age of babies that she saw for the first time as even lower in 1914, as 2.1 weeks, compared with 3.1 weeks in 1913.54 This earlier visiting could explain the apparent increase in babies breast fed between 1912 and 1914. But there are other difficulties which undermine the alleged association between increased breast feeding and reduced infant mortality over the 11-year period.

Armstrong's figures are not incontrovertible (see Table 9). The basis on which he made his calculations varied. In 1909-11, the total babies visited referred to infants in the city and suburbs, while the feeding percentages

52Lewis, "Populate or Perish", p.25, 'Milk, Mothers, and Infant Welfare', p.205
53Kociumbas, 'Children and Society in New South Wales and Victoria 1860-1914', p.190; also Cowden, "Mothers, as a Rule, Do Not Know ...", p.68
Table 9
Babies Visited in Sydney, 1904-1914

<table>
<thead>
<tr>
<th>Babies Visited</th>
<th>1904</th>
<th>1905</th>
<th>1906</th>
<th>1907</th>
<th>1908</th>
<th>1909</th>
<th>1910</th>
<th>1911</th>
<th>1912</th>
<th>1913</th>
<th>1914</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fully breast fed</td>
<td>564</td>
<td>1114</td>
<td>977</td>
<td>1019</td>
<td>958</td>
<td>(c)2636</td>
<td>(a)3042</td>
<td>(a)3006</td>
<td>4026</td>
<td>3522</td>
<td>4166</td>
</tr>
<tr>
<td>Partly breast fed</td>
<td>166</td>
<td>250</td>
<td>210</td>
<td>202</td>
<td>175</td>
<td>(b)214</td>
<td>(b)231</td>
<td>(b)200</td>
<td>444</td>
<td>248</td>
<td>155</td>
</tr>
<tr>
<td>Fully artificially fed</td>
<td>51</td>
<td>91</td>
<td>53</td>
<td>51</td>
<td>42</td>
<td>(b)31</td>
<td>(b)32</td>
<td>(b)32</td>
<td>216</td>
<td>121</td>
<td>104</td>
</tr>
<tr>
<td>Total Babies visited</td>
<td>781</td>
<td>1455</td>
<td>1240</td>
<td>1272</td>
<td>1175</td>
<td>(a)2636</td>
<td>(a)3653</td>
<td>(a)3549</td>
<td>4686</td>
<td>3891</td>
<td>4425</td>
</tr>
</tbody>
</table>

Percentages breast fed

| Fully breast fed        | 72.2%| 76.5%| 78.8%| 80.1%| 81.5%| (d)82.6%| 83.3%  | 84.7%  | 85.9%| 90.5%| 94.1%|
| Fully and partly breast fed | 93.5%| 93.7%| 95.7%| 96.0%| 96.4%| (e)     | (e)    | (e)    | 95.4%| 96.9%| 97.6%|

Average age of babies visited (in weeks)

| 5.3 | 5.4 | 5.2 | 5.3 | 5.6 | 5.5 | (1904-12: 5.3 weeks) | 3.1 | 2.1 |

(a) City of Sydney and surrounding suburbs  
(b) City of Sydney only  
(c) Apparent typographical error  
(d) Armstrong's calculation  
(e) Not available

were for city babies only. From 1910 babies in the surrounding suburbs were included in the feeding percentages, while there is some evidence that breast feeding was more common in the suburbs. At the same time, the breast feeding percentages incorporated three different denominators, for 1904-9 (in the city), 1910-12 (city and suburbs) and 1913-14 (earlier visiting consequent to the maternity allowance), which are not strictly comparable. Armstrong's results, then, may in part at least be an artefact of the numbers that formed the base of his calculation.55

Of more profound significance is the point that the results claimed for the campaign depended on the mothers' prior behaviour. Mothers in the working-class suburbs surrounding the inner city were already breast feeding to a slightly greater degree than those in the city without being exhorted to do so by a nurse, and this suggests that whether or not a mother breast fed had nothing to do with the nurse's visit. A weaning inquiry by the nurse inspectors in 1911 supports this inference. The inquiry, based on a sample of 1047 households, 387 in the city and 660 in the suburbs, where a baby's birth was newly registered, found that babies were introduced to solid food, on average, at nine months, and fully weaned at one year. Another survey in 1913 found that mothers introduced solids earlier, at about four months, and weaned their babies once they reached their first birthday.56 Despite the varied times at which mothers said that they began to give solids, the pattern of weaning at one suggests that mothers were demand feeding, and thus not following the nurses' rules. It may be remembered that Armstrong's advice to mothers was to wean at seven months (by 1913 the nurses advised weaning at nine months). The inspectors' reports in 1911 also lend support to this speculation because they listed 108 'surfeited', mostly breast fed, babies, whose mothers Armstrong judged to be at fault for

feeding 'unsystematically'. Presumably this meant that they were demand feeding. Some circumspection is necessary here; but the weaning surveys are suggestive, and show at least that mothers fed according to their circumstances.

It is impossible to state with confidence, as the entire baby health movement did in future years, that breast feeding increased among mothers inspected, or that the results were due entirely to the campaign to educate mothers. On this point, a hypothetical test may be applied. In the inter-war period reports of infant welfare associations in New South Wales and Victoria defined breast feeding to include partial breast feeding (breast and bottle, or breast and food) as well as full breast feeding, in their eagerness to produce the best possible statistics. Had Armstrong adopted this method, his percentages of breast fed babies would have ranged from 93.5 per cent in 1904 to 97.6 per cent in 1914. This is a much smaller increase than that publicised. Indeed Armstrong's figures, reinterpreted, support as much the considered opinion of the paediatric surgeon Dr C.P.B. Clubbe, the head of the Baby Clinics Board in 1914 and future head, from 1927, of the Royal Society for the Welfare of Mothers and Babies, that in 30 years of medical practice he did 'not think that women are less wanting to suckle their children than formerly', as they do the argument that more mothers were breast feeding. In Clubbe's long experience, women tried first to breast feed, for at least six weeks. Breast feeding percentages in Adelaide were comparable with the Sydney results and Clubbe's findings; the City's nurse inspector found on her visits to 506 houses over a two-year period that 81.8 per cent of babies, visited on average at six weeks of age, were wholly breast fed. They also tallied with the average percentages of breast fed babies attending baby health

57 Armstrong, Report, 1911, p.13
58 Armstrong, 'The Infant Welfare Movement in Australia', pp.643-4
59 FSP, Sectional Report, Evidence of Clubbe, 18 Feb 1913, q.q.2511-12
60 F.S. Hone, 'Infantile Mortality', AMG, 13 Jul 1912, pp.30-1
centres in New South Wales as late as 1930. (This thread is pursued in Chapter 7).

Armstrong's assertion that the nation-wide propaganda in favour of breast feeding influenced the transition in the infant mortality rate in all states, the power of proselytising confirmed by his campaign in inner Sydney, then, remains unsubstantiated. Not only are the figures unreliable, but it is dubious to relate this alleged increase in breast feeding to the fall in infant mortality in Sydney from 1904 to 1914. Yet the claims to have guided mothers back to the path of nature by exhorting them to breast feed became the keynote, the central justification of the baby health movement.

Numbers of babies seen present a further difficulty. Taking Table 9 as our guide, Sydney's nurse inspectors visited 28763 babies in eleven years, 5923 in the City of Sydney in the first five years. While not insignificant, these numbers, as a proportion of the total births in New South Wales of approximately 500000 between 1904 and 1914, amount to less than six per cent of babies born. This is hardly enough to explain the general fall in the infant mortality rate. A more pertinent figure is that produced by Lewis, that by 1911 about 20 per cent of babies whose births were registered in Sydney were visited by a nurse.61 This too requires careful interpretation. Armstrong intended the message of mothercraft to pervade the homes where babies were most imperilled by summer diarrhoea, but the most endangered were from the ranks of the casual poor, mobile in the face of debts and uncertain employment. These mothers often were not there to answer the nurses' knock.62 Nurses frequently found that the addresses given by registrars did not match babies' names on their list. Some mothers hid, afraid that their dwellings would be reported as 'insanitary' and eviction would result. Armstrong revealed later that Miss Ferguson visited

61 Lewis, 'The Problem of Infant Feeding', p.185
62 Armstrong, Report, 1909, p.11. This theme is developed in chap 7
781 babies in 1904, which diminishes the impact of her 1414 visits, to the extent of suggesting that about half were fruitless. Since she knocked at the door of 911 houses, it also transpires that she visited most babies once.63

Indeed, it was the nurse inspectors' policy not to re-inspect breast fed babies. Only the bottle fed were assumed to be likely mortality statistics, and with other inspection duties to perform, compounded, to cite an example, in 1913-14 by a smallpox epidemic, Armstrong's nurses were glad to have second visits delegated to the Alice Rawson School for Mothers.64 By 1911-12 the School, or Schools, in Darlinghurst and Newtown (the latter opened in June 1912) had 468 mothers on the roll, recorded 1983 visits to mothers and weighed 1338 babies, a total that the Schools' nurses believed showed that mothercraft was overcoming the superstition that it was unlucky to weigh a baby.65 For our purposes it matters little that the number of babies claimed to the credit of the Alice Rawson Schools overlapped with the City Council's and government sanitary inspectors' lists. The point is that in this most intensive of the early Australian campaigns, the numbers reached were not very great.

Infants seen by the Benevolent Society's doctors were still fewer in number: 150 in the consultation's first year. Outside Sydney, a tiny number of babies were reached by the movement; the Talbot Milk Institute distributed its bottles to an average of 280 infants a month in the summer of 1909-10, the Chelmsford Institute supplied 50 Brisbane families, while the average attendance at the Adelaide School for Mothers measured 11 mothers a week. Consistent with the level of impact of one visit per child among babies seen in Sydney, these numbers suggest that the first wave of the infant welfare movement did not influence the underlying trend in the

63 Armstrong, 'The Infant Welfare Movement in Australia'
64 Armstrong, Report, 1910, 1911; NSW Dept of Public Health, Report of DGPH, 1913, pp.47-8, 1914, p.44
65 ARSM, 4th Annual Report, 1911-12
infant mortality rate.

Poverty, not maternal ignorance, 'remained the gravest danger to the newborn', though working-class babies were doing better than previous generations.\textsuperscript{66} The campaigns to reform mothers had to battle low living standards and the associated domestic disadvantages. Mothers in receipt of advice from the Alice Rawson Schools were often too poor to carry it out. Improperly fed themselves, after six months few breast fed entirely, the Schools' two nurses found, though in 1912 two-thirds of mothers at the School in Darlinghurst did breast feed to six months. The mothers' burden and low resistance showed up in breast abscesses and in their babies' bouts of gastroenteritis. Many had no time to prepare suitable food, lacked fuel, which was expensive, and cooking facilities; and enervated by the heat of the kitchen in a small house and with small children to care for, their own appetites suffered. Nurse Titcombe, of the School in Newtown, expressed her concern about the anaemic working-class mother: 'her diet is largely made up of tea, with perhaps something from a little shop', corned beef being a common resort.\textsuperscript{67} Often these families lived in one or two rooms, with the mother having to carry water two flights up.\textsuperscript{68} This testimony of the nurses suggests that families living in the meanest parts of Sydney in 1913 occupied dwellings that were not connected to the water mains or that shared a communal tap. No matter how safe Sydney's water supply was by this time, the dangers were considerable that the water was contaminated in transit, or at home. A report on housing conditions in Sydney in 1914 found that: 'Whole streets of small houses have no conveniences - no bathroom, no laundry - yet in many places the rental for two small rooms and a kitchen

\textsuperscript{66}McCalman, \textit{Struggletown}, p.51. On the impact of poverty, see also Lewis, 'The Problem of Infant Feeding', p.186; Cowden, "Mothers, as a Rule, Do Not Know ", chap 3
\textsuperscript{67}ARSM, \textit{Annual Report}, 1911-12, pp.5-7
\textsuperscript{68}ARSM, \textit{Annual Report}, 1912-13, p.3. See also Cowden, "Mothers, as a Rule, Do Not Know", p.69
is ten shillings and upwards per week.\textsuperscript{69} Confronted with the difficulties, and expense, of obtaining clean cows' milk, and of keeping it in these poor homes, the nurses sympathised with the mothers' preference for the dried milks, Glaxo, or Allenbury's foods, and condensed milk. They themselves thought that Glaxo and Lactogen gave the best results, and advised cows' milk and water only in winter.\textsuperscript{70} In these circumstances, it cannot be concluded that health visiting had much effect.

On the other hand, there did appear to be some changes in mothers' behaviour in response to health visiting, of which overcoming the superstition that to weigh a baby brought bad luck was one. In the summers of 1912 and 1913, the Alice Rawson Schools' nurses were pleased that some mothers were proving 'teachable' and cases of diarrhoea were checked by the 'intelligent and faithful cooperation of the mother'.\textsuperscript{71} Some women opened doors and windows to Sydney's air and embraced the instruction to be regular. But - following McCalman - what mothers did, conceivably, was more the result of rising working-class 'respectability' than of the interventions that respectability allowed, as it was in the worst homes that the nurses found mothers who did not boil milk and water or measure bottle feedings.\textsuperscript{72}

Dr W.F. Litchfield did not believe that the reduction in the infant death rate in Sydney was due to Armstrong's breast feeding campaign. Not only had the improvement come earlier, but a feature of this fall was its universality, in Australia, in New Zealand and in England.\textsuperscript{73} He defended his scepticism with statistics. His own table of infant mortality rates in the districts of New South Wales between the 1890s and 1918, their average

\textsuperscript{69}Selwyn Harrison, 'The Work of an Infants' Hospital', AMG, 9 May 1914, p.410
\textsuperscript{70}ARSM, Annual Report, 1913-14
\textsuperscript{71}Ibid., 1912-13, p.6, 1913-14
\textsuperscript{72}McCalman, Struggletown, esp. p.51; ARSM, Annual Report, 1913-14
\textsuperscript{73}Litchfield in discussion of Purdy's paper, 'BMA News', MJA, 18 Mar 1922, p.308
rainfall and summer temperatures, is reproduced as Table 10. Litchfield deduced from this table that in recent years some agency had been in operation that had brought a widespread and uniform fall in infant mortality rates. 'Its influence has extended to the second, third and fourth years of life and it has operated by diminishing the number of deaths from infective processes, especially those affecting the bowels and lungs in young children. It has been independent of public health measures and welfare schemes and there has been no great change in the habits of the people during the period of its occurrence. The only thing I can attribute it to is a widespread but obscure climatic effect. If there is a better explanation I would like to hear it.'

The percentage changes were biggest in the districts where infant mortality was highest in the 1890s, with the exception of New England. Outside Sydney, the greatest percentage falls were in the Murrumbidgee (55.3 per cent), followed by New England, Namoi and Gwydir, and the Murray, at between 50 and 55 per cent, and the Western District, which recorded a fall of 49 per cent. These measurements, calculated from Litchfield's table, strengthen his observation that the general environment seemed to determine the severity of infectious diseases in the post-neonatal period. They suggest that the degree of change in the infant death rate in rural New South Wales was linked to people's dependence on the river systems, and that the state of the environment - especially the supply of water - was important. On the other hand, the underlying trend in the infant death rate was the same across New South Wales, as in Sydney. Pondering this puzzle, we may offer a thought in reply to Litchfield's invitation that there had been a great change in the habits of the people, which the Commissioners on the

74Litchfield, 'Some Notes on Infant Mortality', MJA, 6 Dec 1919, p.480, also quoted by Gordon, Health, Sickness, and Society, p.190
Birth Rate deplored, and called selfishness.75

Table 10  Infant Mortality, New South Wales Districts
1890s -1918
Rates per 1000 Live Births

<table>
<thead>
<tr>
<th>District</th>
<th>10 Years Ending</th>
<th>Annual Rainfall (inches)</th>
<th>Mean Summer Temp</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1903</td>
<td>1905-9</td>
<td>1918</td>
</tr>
<tr>
<td>North Coast</td>
<td>65.3</td>
<td>54.8</td>
<td>46.7</td>
</tr>
<tr>
<td>South Coast</td>
<td>75.3</td>
<td>64.2</td>
<td>52.2</td>
</tr>
<tr>
<td>Monaro</td>
<td>79.4</td>
<td>58.2</td>
<td>56.6</td>
</tr>
<tr>
<td>Gundagai</td>
<td>85.8</td>
<td>65.8</td>
<td>-</td>
</tr>
<tr>
<td>Hawkesbury and Nepean</td>
<td>89.3</td>
<td>77.7</td>
<td>-</td>
</tr>
<tr>
<td>Mudgee</td>
<td>90.5</td>
<td>76.3</td>
<td>52.4</td>
</tr>
<tr>
<td>Murray</td>
<td>95.9</td>
<td>65.2</td>
<td>47.7</td>
</tr>
<tr>
<td>New England</td>
<td>97.2</td>
<td>66.9</td>
<td>43.9</td>
</tr>
<tr>
<td>Bathurst</td>
<td>101.6</td>
<td>81.3</td>
<td>62.5</td>
</tr>
<tr>
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<tr>
<td>Cumberland</td>
<td>107.9</td>
<td>80.8</td>
<td>64.0</td>
</tr>
<tr>
<td>The Hunter</td>
<td>110.9</td>
<td>66.0</td>
<td>54.1</td>
</tr>
<tr>
<td>Namoi and Gwydir</td>
<td>112.5</td>
<td>73.5</td>
<td>50.3</td>
</tr>
<tr>
<td>Murrumbidgee</td>
<td>110.5</td>
<td>82.7</td>
<td>64.1</td>
</tr>
<tr>
<td>Bogan</td>
<td>117.6</td>
<td>69.6</td>
<td>-</td>
</tr>
<tr>
<td>Argyll</td>
<td>165.0</td>
<td>110.3</td>
<td>84.8</td>
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Litchfield's table is reproduced here and informs his argument in W.F. Litchfield, 'Some Notes on Infant Mortality', MJA, 6 Dec 1919, p.480.

Just as Armstrong's scheme came to be upheld as the dominant cause of reduced infant mortality in Sydney, because it combatted maternal ignorance, in Melbourne the milk lobby laid claim to diminished infant mortality in municipalities supplied by the Lady Talbot Milk Institute, as

75Hicks made this point, in 'This Sin and Scandal', p.23. Heeding Jill Matthews, it was women's selfishness that the Commissioners deplored.
due 'entirely to the use of the Talbot milk.'76 There had been no such diminution, lobbyists asserted, in suburbs not served, such as Port Melbourne, Footscray and Brunswick.77 Talbot saved lives by preventing diarrhoeal deaths due to milk poisoning, Jeffreys Wood intoned from the pulpit of St Paul's Cathedral in 1912, deploring the 'slaughter of the innocents'. In the hot summer of 1910 in municipalities that paid for the Talbot milk carts, infant death rates on average were ten deaths lower for every 1000 live births than in cool 1907; in suburbs outside the Talbot area, infant mortality rates were 17 per 1000 higher. Talbot milk saved 27 deaths in every 1000, or, he concluded, 155 children.78

As far as can be judged from the Year-Book, the rates cited by Jeffreys Wood were accurate; but the effect of the Institute's work is unproven. His sermonising about the fall in poor suburbs in which Talbot milk was delivered was right, as far as can be discerned from Table 11, but his assertion is wrong of an increase of 17 per 1000 outside the Talbot milk cart area. Jeffreys Wood seems to have generalised from the example of Port Melbourne, which was moving against the downturn, so much so that it outdid Fitzroy, traditionally the worst performer, for the position of most dangerous suburb for babies in 1910-14.

76'The Talbot Milk Institute', AMG, 20 Dec 1910, p.673
77Ibid., pp.673-4
78'Infantile Mortality', AMG, 16 Mar 1912, pp.277-8
Table 11  
Infant Mortality  
Melbourne Suburbs, 1904-1914  
Average Rate per 1000 Live Births

<table>
<thead>
<tr>
<th></th>
<th>1904-7</th>
<th>1905-9</th>
<th>1910-14</th>
<th>% change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1904-7 -</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1910-14</td>
</tr>
<tr>
<td>Talbot:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fitzroy</td>
<td>128.6</td>
<td>117.4</td>
<td>112.4</td>
<td></td>
</tr>
<tr>
<td>Melbourne</td>
<td>108.3</td>
<td>99.0</td>
<td>92.2</td>
<td></td>
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<tr>
<td>Collingwood</td>
<td>103.9</td>
<td>94.5</td>
<td>98.9</td>
<td></td>
</tr>
<tr>
<td>South</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Melbourne</td>
<td>93.0</td>
<td>92.1</td>
<td>90.5</td>
<td></td>
</tr>
<tr>
<td>Richmond</td>
<td>86.1</td>
<td>82.0</td>
<td>102.3</td>
<td></td>
</tr>
<tr>
<td>Prahran</td>
<td>83.1</td>
<td>76.7</td>
<td>72.7</td>
<td></td>
</tr>
<tr>
<td>Unweighted</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>100.5</td>
<td>93.6</td>
<td>94.8</td>
<td>0.56</td>
</tr>
</tbody>
</table>

| Non-Talbot: |        |        |         |          |
| Brunswick   | 109.4  | 103.9  | 85.0    |          |
| Footscray   | 93.2   | 85.8   | 81.1    |          |
| Williamstown| 92.9   | 97.9   | 80.3    |          |
| Port        |        |        |         |          |
| Melbourne   | 87.8   | 95.0   | 120.0   |          |
| St Kilda    | 81.0   | 74.4   | 63.8    |          |
| Essendon    | 67.1   | 66.4   | 57.9    |          |
| Northcote   | 65.8   | 63.4   | 54.7    |          |
| Hawthorn    | 65.4   | 60.4   | 57.2    |          |
| Malvern     | 64.5   | 64.3   | 55.1    |          |
| Caulfield   | 54.1   | 60.2   | 58.7    |          |
| Camberwell  | 42.8   | 53.1   | 55.8    |          |
| Kew         | 39.9   | 44.2   | 47.6    |          |
| Unweighted  |        |        |         |          |
| Mean        | 72.0   | 72.4   | 68.1    | 0.54     |

Source: Victorian Year-Books

The statistics do not support an argument that the Talbot milk made a great difference. There is no clear indication of a different effect where the milk was obtained and not obtained. In fact, the mean percentage changes in infant mortality rates for the two groups between 1904 and 1914 are 5.6 per cent in the Talbot suburbs and 5.4 per cent in the non-Talbot group. This
difference is not significant.\textsuperscript{79}

Put simply, the milk depot failed. It did not reach the babies among whom diarrhoea tolled highest. The milk was expensive, and the requirements of mothers too elaborate. Ice for the ice chest, even subsidised at a penny, was expensive for people on low incomes. Dwork adds, for the English case, that the advertising was insufficient.\textsuperscript{80} What is more important in Australia, however, is that the failure of pure milk schemes highlighted the quality of the milk supply. The Lady Talbot Milk Institute's model farm at Caulfield had been the only one that had complied with the set conditions, namely a refrigeration room and plant, bottling plant, steam sterilising plant, tuberculin test, washed cows, milkers clothed in clean overalls and cap, a milking shed hosed regularly, a fly-proof cooling room, sterilised utensils, bottles sealed with a wire tie and lead seal. Yet the farm had no wires on the cooling house windows and a large open sewer ran down one side. Talbot milk kept for 24 hours, but it could be delivered older.\textsuperscript{81} Among customers who could afford to pay, North Melbourne creche complained that unpasteurised Talbot milk led to diarrhoea, while a Melbourne practitioner, Dr E.B. Heffernan, had his milk delivered sour even in August. He preferred milk from the Willsmere Company, though he had difficulty in persuading mothers to use pasteurised milk because his medical brethren insisted that it was dangerous.\textsuperscript{82}

The Lady Chelmsford Institute ran into similar problems in the hot weather. Customers unfamiliar with bottled milk returned empty bottles dirty, and the multiplication of germs was 'so enormous' that even after

\textsuperscript{79}A two-tailed t-test on this data produces a t-value not significant at a level of p< 0.05. (Unpaired t-value = 0.244, prob (2-tail) = 0.8106.)

\textsuperscript{80}Dwork, 'The Milk Option', p.68

\textsuperscript{81}FSP, \textit{Sectional Report}, Evidence of Jeffreys Wood, 23 May 1913, q.5988

cleaning, fresh milk poured into reused bottles became contaminated. A steam steriliser solved the problem, its initial absence testimony to milk production standards. Demands for ice increased with the heat, so that deliveries were delayed, and bottles crowded out of ice boxes on the tops on carts, resulting in spoiling. Chelmsford milk, like Talbot milk, would not keep for 24 hours without ice. Forced by safety to recruit its own milk carts and deliver twice a day, possible only in the central city, Brisbane's depot folded, in deficit.83

Milk depots foundered, then, because of the slow acceptance of pasteurisation and the milk bottle. Expense was a major, but not the sole impediment. Leading doctors, who were divided over the heating of milk, whether by boiling, scalding or commercially pasteurised, generally denigrated pasteurisation, on the grounds that it diminished or destroyed milk's nutritive qualities; sterilising milk removed the anti scorbatic element, resulting in scurvy and rickets. It also altered the flavour. Drs Jeffreys Wood in Melbourne, Clubbe in Sydney and Borthwick in Adelaide favoured fresh, raw, chilled milk because 'cooked' milk offended their conceptions of the natural.84 Mackellar disclosed the lack of clinical experience underlying the judgments of anti-pasteurisers during the hearings of the Commission on the Birth Rate, when he asked whether the milk caramelised at temperatures of 167°-185° F.85 Even the acting director of the Government Bureau of Microbiology, Dr J.B. Cleland, preferred raw milk in principle, but such was the state of the Sydney milk supply that in his home, his wife boiled the milk. On the basis of his own experience, then, he thought in 1913 that milk should be delivered fresh and boiled at

83 'The Lady Chelmsford Milk Institute in Brisbane', AMG, 20 Nov 1909, pp.622-4
84 RCDBR, vol 2, Evidence of C.P.B. Clubbe, 30 Nov 1903, q.4464, A. Murray Oram, 7 Dec 1903, q.5102-4, 5106; FSP, Sectional Report, Evidence of T. Borthwick, 27 May 1913, qq.6280, 6295-7
85 RCDBR, vol 2, Mackellar during evidence of Sydney Jamieson, 7 Dec 1903, qq.5301-2
Milk reformers believed that pasteurisation allowed milk companies to obscure the quality of milk, and that the surviving bacteria were likely to grow faster than in raw milk, compounding the dangers. Pasteurisation did find some advocates, however, such as the future Victorian health minister, Dr Stanley Argyle, chairman of the Willsmere Certified Milk Company of Victoria, who considered it established that diarrhoeal diseases in children were traceable to milk. Argyle believed strongly in pasteurisation as the only safe method of removing the danger; pasteurised milk outkept the raw product by several days because it reduced the bacteria in milk by 97 per cent. If milk was initially dirty, the danger increased, but the process still preserved lives because once bad, the milk smelled so that none would drink it.

In Australian cities, there was no power to prescribe the requirements for pasteurisation, let alone a bacterial standard. The New South Wales Fresh Food and Ice Company used the 'flash' process, of quickly heating the milk to 180° F, followed by immediate cooling to 50° F, but some doctors thought that this would not destroy the pathogenic organisms. Argyle scorned the flash method as 'absolutely useless'. His Willsmere Company adopted the more expensive 'holder' process, heating the milk to 150° or 155° F for 20 minutes. Pasteurisation in Australia, as in Britain, remained 'voluntary and rather slipshod'.

Dairymen and anti-pasteurisers opposed pasteurisation because of the

86FSP, Sectional Report, Evidence of J.B. Cleland, 14 Mar 1913, qq.5384-6, 5389, 5393, 5396
87FSP, Sectional Report, p.xxii; Evidence of Clubbe, 18 Feb 1913, q.2528; RCDBR, vol 2, Evidence of Frank Tidswell, 3 Dec 1903, q.4676, W.G. Armstrong, 3 Dec 1903, q.4846
88'The Pasteurisation of Milk', AMG, 5 Jul 1913, p.7, reporting Stanley Argyle's evidence before the NSW Government's Royal Commission of Inquiry as to Food Supplies and Prices;
FSP, Sectional Report, Evidence of Argyle, 2 Jun 1913, qq.6386-7, 6391, 6403, 6407-9
89FSP, Sectional Report, Evidence of William Simons, Registrar of the Metropolitan County Board, Adelaide, 27 May 1913, qq. 6248-9
90Ibid., Evidence of D.A. Ogilvy, Chief Inspector, NSW Fresh Food & Ice Co, 6 Feb 1913, q.908, 14 Feb 1913, pp.2015-17, Argyle, 2 Jun 1913, qq.6400, 6416; Smith, The Retreat of Tuberculosis, p.193
cost, but Argyle maintained that his company's milk was more expensive not because it was pasteurised, but because it was bottled. (While fresh milk sold at 5d a quart, Willsmere pasteurised milk, bottled after, sold at 5 - 5 1/2d, and its infants' milk, pasteurised in bottles, for an undisclosed higher figure). Milk companies admitted that their milk could go off in a few hours, but they imbibed the medical view that the chief trouble was the householder who left open jugs on doorsteps and windowsills.91 In truth, they feared for their property: the companies wanted to retain possession of the milk containers and could do so with cans, in a way that they could not with bottles, which entered into the possession of the customer, who could not be trusted.92

Yet cleanliness was 'only a question of money'. Sydney's Fresh Food and Ice Company supplied the Governor-General and the Governor of New South Wales with a special supply of milk, prepared by a special process, for which the élite could afford to pay.93 Sick infants were not so fortunate. Dr Clubbe struggled for years to find good milk for sick infants at the Royal Alexandra Hospital for Children. In 1912 he found that the infants' milk delivered by one dairyman contained two to eight million bacteria per cubic centimetre, while his ordinary milk sold to the public contained 34 million per cubic centimetre; in short, a large amount of dung. Clubbe resolved never to order liquid milk in the hot weather, when bacterial counts routinely rose to three or four million: 'The milk we drink', he asserted, 'must often contain a great deal more bacteria per cubic centimetre than sewage.'94 Clubbe's invective upset the dairymen, who protested that their own children drank surplus milk from the carts after their fathers had

91FSP, Sectional Report, Evidence of Argyle, 2 Jun 1913, q.6417; W.J. Penfold, Director, Commonwealth Serum Laboratories, 'The Bacteriology of Milk', in The Milk Question, p.17
92Ibid., Evidence of Ogilvy, 6 Feb 1913, qq.928, 936, 14 Feb 1913, q.2019
93Ibid., Evidence of Ogilvy, 14 Feb 1913, q.2018
94Ibid., Evidence of Clubbe, 18 Feb 1913, q.2550
finished their rounds, without the milk being boiled, and without jeopardising their health. This evidence is more ominous in the knowledge that E. coli is a cause of infant diarrhoea.

Certainly Melbourne's milk was dirty. Dr R.J. Bull, pathologist at the University of Melbourne, in 1911 made bacterial counts of twelve samples which ranged from 42000 to 1400000 bacteria per cc, producing an average count of 653333. Nine of the samples were above 500000 per cc, the point at which milk in Boston, in the United States, was condemned. Only two samples fell below the United States standard for inspected milk of 100000 per cc, and none met the standard for certified (infants') milk, of 10000 per cc. Talbot milk, although unpasteurised, was definitely a much safer milk, even if it did not meet the American standard for babies. Dr Bull reported bacterial counts of 31700 and 54500 in 1909-10, improving to 8500 and 22000 in 1912-13. The Institute struggled on, though it ceased to be the focus of the battle to reduce infant mortality.

MOTHERCRAFT AND WAR WASTAGE

In Australia as in England, the United States and New Zealand, mothercraft was the successful strategy that gained momentum from 1914. But the Australian case does not fit the received historiography of infant welfare because the major fall in infant mortality preceded the rise of mothercraft institutions. The baby health movement did not take off until the losses of the Great War provoked administrators to try to 'repair the present war wastage'. In four years of war, Australia lost 60000 of its best young men, its A1 stock. At home in the same four years 47000 babies died.

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96H.B. Allen, 'Presidential Address', Aust Med Cong, Melbourne, AMG, 20 Nov 1908, p.584; 'Milk and Disease', AMG, 3 Aug 1912, p.132; FSP, Sectional Report, Evidence of Jeffreys Wood, 23 May 1913, qq.5997-8, where he muddled the American standards for certified and inferior inspected milk
97Ibid., Evidence of Jeffreys Wood, q.5988
98MBHA, Jubilee, p.15
Australia needed every baby born, to replace its lost efficient manhood and to improve the efficiency of the people. Wartime economic and political priorities commanded that: 'the hope of Australia lies in healthy living babies, fewer dead babies, stronger children, and a fitter race.' 'Population means power! The nation that has the babies has the future.' More than empty spaces had to be filled: in the Great War as in the Boer War, the results of army medical examinations roused alarm about the quality of the British stock, that seemed more C3 than A1. About 36 per cent of Australian men were counted as unfit for overseas service, fewer than in New Zealand or Britain, but enough to be cited as evidence of degeneracy.99

While the crusade to save the nation everywhere shared this philosophy, there was a range of local mothercraft organisations in Australia, all shaped by the distinctive features of their state and their founders. A predominance of Labor governments in New South Wales, accustomed to relate infant mortality to bad social conditions, built institutions to strengthen poor mothers and babies. Fred Flowers, the Minister of Public Health responsible for the health and hospital reforms of 1913-14, opened the Lady Edeline Hospital for babies ill with gastroenteritis in 1913. His wife, an infant welfare activist, was the hospital's president, its vice-president was Ada Holman, wife of the Premier, W.A. Holman, who had been the sole Labor member of the Royal Commission on the Birth Rate in 1903-4 (and was the only member not to sign its report), and its matron was the former nurse inspector, Miss Burne. The government-funded hospital, managed by a committee of philanthropic ladies, occupied the mansion, 'Greycliffe', on the shores of the harbour, that had been home to

99Quotations are from advertisement for NSW's first baby week, 'Long Live King Baby!', Sunday News, 24 Mar 1920; also Bathurst Times, 3 Sep 1919, DT, 1 Oct 1918, 5 Nov 1918, Bystander, 24 Oct 1918, Ashfield Advertiser, 2 Nov 1918, Sunday Sun, 29 Feb 1920, Sydney Mail, 24 Mar 1920, RSWMB, 11/1. On the percentage assessed as unfit, see Thame, 'Health and the State', p.29; in Britain, 36% of recruits were classified A1, or fit and healthy, and in New Zealand, 34%
the Wentworth family. Nearby, the government established a convalescent home for women at Rose Bay, in 1915, to allow tired working-class mothers to recoup their strength with 'a week or two weeks' rest and feeding up'. The rest home, intended as a safety net to retrieve sickly mothers and infants, shared the purpose of the baby clinic, of saving babies from the bottle. Flowers had pondered whether to open instead a babies' hospital and mothercraft home on the New Zealand 'Karitane' model, after hearing its inventor, Dr Truby King, speak at the Australasian Medical Congress in Auckland in 1914; but he decided against it because the New Zealand style of baby hospital better suited the upper and middle classes. Nonetheless Truby King did succeed in persuading the Premier that eugenics meant more than selective breeding: Holman found himself persuaded no longer to shudder at the word, which he had hitherto spurned as 'biology run to seed', and convinced that indigestion was more important to the health of the race than the evils of drunkenness.

In New South Wales the baby clinics expanded first to areas with the worst infant death rates. By December 1915 there were nine baby clinics, in Alexandria, Balmain, Glebe, Mascot, Newtown, North Sydney, St Peters, Waterloo and the mining town of Newcastle, and by December 1919 there were 15 (30 including sub-centres), with discussions under way to build a new centre at Broken Hill. The opening of a clinic in salubrious North Sydney suggested that the movement already had a wider appeal. Dr Margaret Harper, elegant and Presbyterian, who was appointed the first medical officer to the state clinics in 1914, helped to extend that appeal in the

102Acting Under Secy to G. Griffiths et. al., circular letter, 27 May 1914, 2/8566.2; Flowers, Interim Report, 21 Jun 1914, p.2; Report of DGPH, 1914, p.141; Holman, in 'Discussion', TAMC, 1914, pp.90-1
1920s. As a new graduate from the University of Sydney in 1907 she had been a resident medical officer at the Royal Hospital for Women in Paddington when the consultation for infants at the hospital was beginning its work. The first woman appointed to an honorary post at the Royal Alexandra Hospital for Children, she went on to lead the infant welfare lobby in New South Wales, taking over from her mentors Clubbe and Litchfield, in her capacity from 1921 as Director of the first Tresillian mothercraft home in Sydney.\textsuperscript{103}

The New South Wales Early Notification of Births Act 1915, a copy of the English legislation, was intended to ensure that poor mothers were visited in the first week of their baby's life. The Act required that births within the 'more congested areas' of the metropolis and the Hunter River District, served by the clinics, be notified within 36 hours. Dwork has argued that the British Act of 1907 was pivotal to the success of mothercraft education and health visiting. Albeit that early birth registration allowed earlier visits, such an outcome cannot be assumed in Australia where the passage of laws for early birth notification was as uneven as the spread of the movement itself. South Australia had no equivalent Act until 1927-8, Victoria not until 1930; and then only applicable until 1940 in municipalities with infant welfare centres.\textsuperscript{104}

In non-Labor Victoria events took a different turn from the start. The first baby health centre had to wait until Dr Isabella Younger Ross returned from London via the United States in 1917 and established the first centre in the Boroondara Free Kindergarten in the working-class suburb of Richmond. Dr Younger Ross, the daughter of a businessman, married to a

\textsuperscript{103}For biographical details, see Lysbeth Cohen, \textit{Dr Margaret Harper: Her Achievements and Place in the History of Australia}, Sydney, 1971

businessman, was Dr Eric Pritchard's star pupil among the colonial doctors, principally women, who attended his wartime lectures at the St Marylebone General Dispensary. (Pritchard, Truby King's English rival, features in Chapter 5). In May 1917 Dr Younger Ross and her partners, Mrs Ramsay, of Ramsay Bookshop and Medical Supplies, and Mrs Ethel Hemphill of Camberwell, and their nurse, Muriel Peck, furnished their room in the kindergarten. Nurse Peck, trained at the Children's Hospital in Melbourne, was a multiple-certificated nurse who had spent two years home visiting for the Lady Talbot Milk Institute. She became Matron of the Victorian Baby Health Centres' Training School from 1920. The designer of a baby safe-cot, she also wrote a book, Your Baby, published in 1929 and did much propaganda work on her tours of Victoria for ten years from the mid-1920s publicising infant welfare.105

There was a row from the moment that these enthusiasts opened the door of their centre. The women active in the Melbourne District Nursing Society and their associates in the Victorian Ladies' Benevolent Society and Association of Creches, Mrs Henderson, Mrs Tatham and Mrs Alfred Deakin, wanted to participate in the coming baby clinics, which they saw as a natural extension of their district nursing among the sick poor. This was, historically, correct, as the health visitor was the forerunner of the baby health nurse. Melbourne's philanthropic women objected to the notion of a movement that was purely preventive, a direction confirmed in 1918 by the adoption of the term 'baby health centre' in preference to the term 'clinic'

then used in New South Wales. But the women of charity found themselves outmanoeuvred by the group of seven doctors, of whom five were women, led by Dr Younger Ross, and two health officials, who drew up the scheme for the Victorian baby health centres. The new mothercraft institutions universally stated their goal, in preventive terms, to be the saving of baby life.106

Concurrently, Sister Maude Primrose of the Visiting Trained Nurses' Association of Victoria, an organisation of paid visiting nurses founded in 1909, began her battle to transplant the New Zealand system of infant welfare to Australia. Sister Primrose had completed her infant welfare training at the Karitane hospital in New Zealand. She gained the ear of the National Federation and persuaded politicians to the idea of establishing a mothercraft organisation along the lines of the New Zealand Plunket Society. At a conference in June 1917, the Liberal Government declared the need for coordination in one scheme, as in New Zealand; but politicians and Truby-Kingites moved too slowly. By June Younger Ross and her women colleagues had opened three baby health centres at kindergartens in the inner suburbs of Richmond, Carlton and the City. Together these comprised a fledgling Infant Welfare Society, that became the nucleus of the Victorian Baby Health Centres Association in June 1918. The Association, which won the support of the charity lobby, was headed by the prominent children's physician, Dr A. Jeffreys Wood, with Mrs Hemphill as secretary. Though lame, Mrs Hemphill carried the first set of scales from centre to centre by taxi and when cash was short, by tram, conveying with her the spirit of voluntary women workers in the movement.107

106MDNS, Minutes, 20 Feb 1917, 27 Feb 1917, 13 Mar 1917, 20 Mar 1917, 7 Aug 1917, 14 Aug 1917; the charity women presented a minority report to the Government, VMWS, Minutes, 16 Apr 1917, SLV MS 11710, Box 1879/1; Argus, 29 Jun 1917, p.6, 8 Aug 1917, p.12; Newman Rosenthal, People - Not Cases. The Royal District Nursing Service, Melbourne, 1974, pp.53-4
107M.V. Primrose, 'Save the Babies', Una, 30 Apr 1917, pp.46-7; Richmond, Carlton, City, and North Melbourne Baby Clinic Centres, First Annual Report, 1917-18, VBHCA, First Annual
By December 1919 the Victorian Baby Health Centres numbered ten, all in the inner suburbs of Melbourne - in Richmond and South Richmond, Carlton, North Melbourne, Collingwood, Fitzroy, Port Melbourne and South Melbourne, and Brunswick - except for one in the port city of Geelong, organised in December 1917 by the local District Nursing Society. Similar initiatives sprang up on a smaller scale for the fewer babies in other states. Queensland's Ryan Labor Government, following the example of New South Wales, opened four baby clinics in Brisbane in 1918, Tasmania's Child Welfare Association, established by Mrs Edith Waterworth, opened a clinic in Hobart in 1917, and a second in Launceston, while in South Australia the School for Mothers consolidated its position, obtaining in 1918 its first grant from the Adelaide City Council. Western Australia held a baby week in 1917, but did not establish its Infant Health Association until 1922-3. Its women's organisations were in conflict; and wherever there was conflict, there was delay.108

Despite the variations in timing of the rise of mothercraft institutions, at the bidding of personalities and politics, these Australian bodies all enjoyed the support of the same coalition of interests. They found their strongest advocates among women's organisations, among medical women and doctors' wives, mayoresses and politicians' wives, the well-to-do-women who ran philanthropic societies, kindergartens and creches and district nursing associations, the National Council of Women and the

Report, 1918-19; VBHCA, 'The Story of the Baby Health Centre Movement in Victoria'. On Primrose, see Gibbney and Smith, A Biographical Register, vol 2, p.190

Women's Christian Temperance Union; among children's physicians, in foundling homes, women's and children's hospitals; in the Australian Health Society and the Council of Churches. The British Medical Association warily contributed members. In short, these health missionaries, these recruits in a 'life saving campaign' directed at mothers, led by women and doctors, had the backing of church and secular authorities in their conviction of rightness.109

The baby health movement as an effective movement dates from 1918, when the Great War promised government commitment, though this proved more in word than in deed. The major institutions in Victoria and New South Wales, the Victorian Baby Health Centres Association, and the Royal Society for the Welfare of Mothers and Babies, were both launched in 1918. Sydney's Society consisted of doctors, politicians, public servants, institutions and private individuals, anxious to improve efficiency by preventing overlap among groups already active in the campaign to reduce infant mortality, and to remove from the state full control of the baby clinics, ostensibly to avoid deterring mothers by cold officialdom. In reality, this ensured the medical profession a controlling interest. The government recruited to head the Society a businessman and Nationalist, S.R. Innes-Noad, in the hope that he might attract funds; its vice-presidents included the Minister of Public Health, J.D. Fitzgerald and former Minister, Fred Flowers, the Labor-become-Nationalist Premier, W.A. Holman and his fellow former participants in the Commission on the Decline of the Birth Rate, Sir Charles Mackellar and Dr Clubbe; but its most influential members were the doctors responsible for the baby clinics: Clubbe and his old colleague, W.F. Litchfield, and their pupil, Dr Harper; and the women active in charitable work, among them Mrs Hugh Dixon, who were essential to the

109Quotation from F. Fox Benson, in Bystander, 24 Oct 1918
financial arrangements of the organisations under its umbrella.\textsuperscript{110}

The Victorian Association, organised more loosely as a federation of centres and societies, had 19 members of council in 1919, of whom 12 were philanthropic women and three were women doctors (Drs Constance Ellis, Jean Greig and Isabella Younger Ross), the remaining four men being City Councillors, a Salvation Armyist and a prominent Melbourne medical practitioner, Dr W.G. (Sir George) Cuscaden. Dependent on its own funds until 1918, the Association owed much to Mrs Lina Henderson of the National Council of Women, who collected and sold old newspapers for the Red Cross during the war and continued the scheme for the baby health centres. From 1918 the state government granted a subsidy of a pound for a pound to each centre to cover half the salary of a nurse and running costs, the other half being met by the local city council. The municipal backing that would denote the Victorian movement ensured that the infant welfare centres would be varied in style and instruction and flourish irrespective of what government was in power.\textsuperscript{111}

These Australian mothercraft institutions owed much to British models, including the 1918 Maternity and Child Welfare Act. The aims of the Royal Society for the Welfare of Mothers and Babies, which included the proper nursing of women before and after childbirth, resembled the British Local Government Board's model scheme of 1917-18 in being directed both at the infant and at the mother. Sydney's Royal Society might also have drawn on aims of the Plunket Society in New Zealand had Truby King been at home in 1918 to receive an Australian visitor. The Governor of New South Wales, Sir Walter Davidson, in 1918 commissioned Neville Mayman, the president of the Benevolent Society, to examine the reasons for the low

\textsuperscript{110}RSWMB, Minute Books, 4/1, Annual Report, 1919-20

\textsuperscript{111}VBHCA, Annual Reports; on Mrs Henderson's fund-raising see esp. VBHCA, First Annual Report, 1918-19, pp.6-7. The role of women doctors in the Victorian movement is discussed in Reiger, Disenchantment of the Home, chap 6
infant mortality rate in New Zealand and to suggest how New South Wales might improve its performance. In Truby King’s absence in England, Mayman listened to New Zealand’s Chief Health Officer, Dr T.H.A. Valintine, who was quick to stress the role not of Truby King but of the Health Department, assisted by New Zealand’s climatic and social advantages over Australia. Mayman recommended a ‘Royal Society for the Care of Mothers and Babies’, but cautioned that only on this trip had he discovered its resemblance to the Plunket Society; he had placed a similar proposal before the New South Wales Government in 1917.112

The Victorian Baby Health Centres borrowed their objects and nurses’ rules from New Zealand. The Victorians co-opted the aims and objects of the Plunket Society, but shed their overt pronatalism and peremptoriness. In Victoria, the New Zealand society’s first aim, ‘To uphold the Sacredness of the Body and the Duty of Health; to inculcate a lofty view of the responsibilities of maternity and the duty of every mother to fit herself for the ... natural calls of motherhood, ... and especially to advocate and promote the Breast-feeding of infants’, became ‘To safeguard the health of mothers and babies, by the spread of knowledge of the laws of health’ and ‘To encourage the breast-feeding of infants’, the pronatalist middle section having been removed. This pruning produced a list of pledges less impassioned than those of the Plunket Society, not least because the word ‘duty’ was omitted.113

In the wake of war, New Zealand became the model for a 'systematic

112 Mayman was a founding member of the NSW baby clinics board. His report was published as Legislative Assembly of NSW, Public Health. Report of the Commissioner, Mr Neville Mayman, on the Inquiry into the Welfare of Mothers and Children in New Zealand, Sydney, May 1918, which was tabled at a conference in Oct 1918 and contributed directly to the formation of Sydney's Royal Society; Sunday Times, 6 Oct 1918, Bystander, 24 Oct 1918, RSWMB, 11/1

113 Aims and Objects, RNZSHWC, Annual Reports; VBHCA, Annual Reports (the debt to New Zealand was acknowledged in VBHCA, First Annual Report, 1918-19)
pioneering educational health mission' in infant welfare. It's low infant mortality rate issued a challenge to Australia's reputation as a healthy country and became the yardstick of achievement in the crusade to save lives.

114 'Vesta', 'A School for Mothers. The New Zealand Scheme', Argus, 19 Sep 1917, p.12. Vesta (Stella Allan), the woman correspondent on the Melbourne Argus, was an influential expatriate New Zealand feminist. She had been New Zealand's first woman law student, and was sister of New Zealand's first woman Member of Parliament. See Patricia Keep, 'Stella May Allan', ADB, vol 7, 1891-1939, p.39; and on her younger life, as Stella Henderson, see Dorothy Page, 'Women and Nationality', in Brookes, Macdonald and Tennant (eds), Women in History: Essays on European Women in New Zealand, p.159
Figure 8  The Yardstick: Infant Mortality Decline
Australia and New Zealand

Source: Appendix 2
'If the British eugenists had dominated discussion in the first decade of the century, and American environmentalists in the years around the Great War,' Davison has written of the Australian liberal reform movement's efforts in infant nurture, 'in the 1920s it was particularly the example of New Zealand and the influence of Dr. (later Sir) Truby King, the famous mother and baby care expert, which came to the fore.' Dr Frederic Truby King (1858-1938) was a psychiatrist who devoted the last 33 years of his life more to infant welfare than to his many other interests, and came to personify the baby health movement of the British Empire. A noted proselytiser, he was adept at differentiating his message from others. In the process he acquired antagonists as well as adherents and coloured the international history of infant welfare. This brought him into combat with Dr Eric Pritchard (1864-1943) of London, who was also influential in Australia. Pritchard was leader of all the voluntary infant welfare organisations in England. The philosophies of both of these authorities are developed here in order to gauge just what were the examples held aloft to, and by, Australians as mothercraft institutions flourished after the Great War.

The similarities between the two leaders were more important than their differences, but because Truby King tried to impose his 'system' in Australia his regimen is examined in more detail. He made his country a model for Australia in the infant welfare crusade in the 1920s, heedless of the constraint that New Zealand, as the country with the best performance in infant mortality, only set an appropriate example if the relevant

1 Davison, 'The City-bred Child and Urban Reform in Melbourne', p.163
2 See, for example, Reiger, Disenchantment of the Home, p.131
conditions which had spelled success were equally present in Australia. With the help of his wife and '25 earnest women' he founded the New Zealand Society for the Health of Women and Children in Dunedin in 1907. This became known as the Plunket Society, and his rules of mothercraft became the 'Plunket system'. Both were named for Lady Plunket, his patron, as the wife of the New Zealand Governor-General. The Society enlisted and involved wealthy women. As Erik Olssen has observed, 'the executive of the new society consisted exclusively of upper-middle class ladies, drawn from some of the wealthiest and most notable Dunedin families'. Truby King converted the imperial élite to rearing by his routines, including the Duchess of York, whose daughter, the little Princess Elizabeth, a child of the twenties, was advertised in Sydney's press as a Truby King baby.

Olssen has examined the relation in Truby King's teachings between regular habits and moral health, and presented him as a prophet of the Enlightenment's 'new science' ministering to a modernising New World society. Olssen deliberately avoided a medical focus in an effort to portray Truby King's 'larger vision' and his synthesis of 'the Protestant consensus about morality and family with the teachings of medical science'. My study deliberately assumes a medical focus because its object is to relate the health missioners' rules to demographic and social change and to assess their claims that their interventions were directly causal in reducing infant deaths. Building on Olssen's interpretation, Truby King is revealed as representative of the 'missionary model' and its pursuit of the 'full

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3Vesta', 'A School for Mothers. The New Zealand Scheme', Argus, 19 Sep 1917, p.12
5Sunday News, 20 Mar 1927; Sunday Telegraph Pictorial, 13 May 1928, AMS, Newspaper Cuttings
development of the healthy', or as Truby King himself put it, of boosting the health rate and improving the 'general standard of health, strength and efficiency in the whole community.'

TRUBY KING

Truby King was fiery, with compelling presence and a driving ambition. He was the would-be dominating, controversial media idol of his generation. A wizened bent figure, from a family riddled with tuberculosis, he was a small man, blinded in the left eye by a tubercular infection, which left his face lopsided. On the platform he dazzled audiences with graphs and entranced them with his musical delivery; when he died in 1938, the Bishop of Wellington said in a funeral eulogy that he had the 'eyes ... of a visionary, almost of the fanatic.'

This national icon was of Scottish descent, a member of the professional middle class, the son of a bank manager and MP. As a youth he followed his father into banking but, perturbed by insolvencies among farmers, he discarded this career for medicine. He studied at Edinburgh where in 1886 he graduated the top student of his year, and became the first to gain a degree in public health. One crucial influence at Edinburgh, on the passage of infection, was the American medical practitioner and philosopher Oliver Wendell Holmes; another the English social philosopher Herbert Spencer; Spencer's perception of humanity in an evolutionary natural order, in

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8*Dominion*, Wellington, 14 Feb 1938. A. Jefferis Turner remarked on his 'great driving power', in 'Experiences in Preventive Medicine', *MJA*, 12 Nov 1938, p.810; see also *SMH*, 1 Sep 1934, RSWMB, 11/2; 'Obituary', *NZMJ*, vol 37, no 198, Apr 1938, p.96. Mary Truby King, *Truby King the Man*, London, 1948, p.208, and Dr A.E. Wilmot, interview, Melbourne, 5 Sep 1985, described his musical voice
particular, infused all of his subsequent writings.9

In 1887 Truby King married Isabella Cockburn Millar, dux of Edinburgh Ladies' College, who was deformed by rickets and could not have children. Her talents and devotion complemented his career; he called her his 'ideal wife'. Bella, the only daughter of a Scotch Presbyterian professional family, studied literature at university where she obtained an Honours certificate, as women were barred at that time from taking a degree. In New Zealand she edited a weekly 'Our Babies' column, published by 1913 in more than 50 newspapers.10 While in one sense Bella and Frederic Truby King were an unlikely pair to lead the crusade for infant welfare, in another their mutual battle against common health hazards, reinforced by their partnership of the intellect, nerved them for the task.

Truby King was a likely candidate for the role in a professional sense because of his background in psychiatry. His appeal to the public to fulfil the 'duty of ... Health and National Efficiency' arose from years of experience dealing with disturbed and handicapped people.11 He began his principal work, in mental health, in 1889 as superintendent of the Seacliff Mental Asylum, near Dunedin. At Seacliff this authority on nervous diseases tried to mend lives haplessly misshapen. Clothing his patients in bright tartans, he took them out of the Scottish Gothic confines of the hospital into the gardens and the paddocks of the 1000 acre farm beside it, which he managed scientifically on the grounds that the 'broader principles of life apply equally to plants and animals.'12 The insane, exposed to fresh air and sunlight as farm workers and gardeners, had their toil broken by trips to the Truby

9F. Truby King, Application for Position of RMO to Wellington Hospital, King Family Papers, ATL MS 1004, F 4; Mary Truby King, Truby King the Man
10RNZSHWC, Annual Report, 1912-13, pp.3, 6, Central Council and Dunedin Branch, 1920, p.34; Truby King, The New Zealand Scheme, p.2. See also Olssen, 'Truby King and the Plunket Society. An Analysis of a Prescriptive Ideology', p.11
12Truby King, The Feeding of Plants and Animals, Wellington, 1905, p.5
Kings' beach home on the nearby Karitane peninsula. Here, wedged between ocean and river mouth, was a simple utopia of Japanese gardens, bowers and meandering pathways, neatly rock-lined, leading onto the sand, where they breathed the air that came in gusts from the Antarctic. The wooden cottage at Karitane became for a few months in 1907 the first Karitane' baby hospital, manifesting the transition of its owner from mental health to baby expert. Truby King's Karitane hospitals, institutions at once for the education of mothers and nurses in the art of breast feeding, and for the care of babies stricken with problems of improper nutrition, were spectacularly sited, because they were havens, and run along the lines of tuberculosis sanatoria. So was the farm at Seacliff, which became a prizewinner; cows were taken from stuffy sheds and seed potatoes were exposed to light and air.13

The first Karitane babies had been found starving in a stable by Joanna MacKinnon, a Seacliff Asylum nurse whom Truby King trained to be the first Plunket (infant welfare) nurse; she helped in 1905 when the couple adopted a baby daughter.14 The feeding of Mary, who as an adult would be influential in their cause in Australia, gave added impetus to the doctor's experiments. Nonetheless, as a baby, Mary's life was not ordered to strict routines; Bella King was 'too sensible to allow it'.15 Truby King lived at Seacliff for 30 years, until he moved north with wife and daughter in 1921 to become New Zealand's first Director of Child Welfare.

Still he did not leave psychiatry behind. In the mid-1920s he was both Inspector-General of Mental Hospitals and the national authority on

13Truby King, The Feeding of Plants and Animals, pp.2-5, The New Zealand Scheme, p.10; RNZSHWC, Annual Report, Central Council, 1930, pp.8, 14-15. On this paragraph in general and tartans in particular see Mary Truby King, Truby King the Man
14RNZSHWC, Annual Report, 1930, pp.9-11, 13; 'Plunket Nursing in Early Days', an interview with Mrs J. Murray, nee MacKinnon, nd (1950s), King Family Papers, MS 1004, F 9; Milne, 'The Plunket Society', pp.26, 40-1
15Sally White, great-niece, Melbourne, letter, 30 Jul 1986
mothers and babies. This combination suggests that he was a typical hygienist of his day. On the one hand, he invites this label because the two strands of social hygiene met in his careers and his doctrine: he favoured sterilisation of the 'unfit' marred by a 'hereditary taint', but strove to redeem children born healthy who fell victim to 'bad feeding, ignorance, insufficient attention and unhygienic environment.' This philosophy was similar to that of Mackellar, among others of the Australian medical fraternity who distinguished between the hereditarily fit and unfit, and who believed that high infant mortality led to the sacrifice of the former, enfeebled by their upbringing, rather than to the elimination of the latter. Truby King regarded the hereditarily unfit as physically degenerate, manageable only by castration. By 1924 he was dejected enough to remark that too much hope was placed on psychology; it was 'desirable that obviously unfit and bad strains should be got rid of ...', and his cure for lack of sexual control, 'handed on from generation to generation', was sterilisation. On the other hand, he saw sterilisation as redemptive and in this sense regarded the 'bad strains' as curable; through castration, control and willingness to work and domesticity were restored. He cited the example of the horse. The gelding, full of life and activity, had not the 'wild sexual impulses' of the stallion. This report of his philosophy differs from the division in psychiatric thought that Garton identifies between the curable, for whom environmental remedies were sought, and the incurable for whom eugenists advocated segregation, sterilisation or death. Truby King's definition of the hereditarily unfit, too, which he confined to sexual offenders on this occasion, was narrower than those of other psychiatrists.

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16Truby King, Save the Babies, Auckland, 1917, p.5; Committee of Inquiry into Mental Defectives and Sexual Offenders, Evidence, 1924, pp.573A, 615, NA H3/13, Wellington
17cf. Garton, 'Sir Charles Mackellar', HS, vol 22, no 86, Apr 1986, pp.21-34
18Committee of Inquiry into Mental Defectives and Sexual Offenders, Evidence, 1924, pp.573A, 615, NA H3/13
19Garton, 'Sir Charles Mackellar', pp.26-34
Yet his desire to be rid of bad strains and his advocacy of castration as a 'cure' mark him as a eugenist.

This was an older Truby King speaking. Eugenics, to Progressives, meant more than selective breeding, and in articulating how heredity and environment operated the New Zealander, especially in earlier years, proved an effective spokesperson for the humane wing of social hygiene. In 1914 he told an Australasian audience that heredity and environment were not mutually exclusive. On the contrary, heredity represented the sum of environmental influences over which humanity had 'every control' from the moment of conception, the moment when all that heredity could do was done.20 Thus he directed his message at the expectant mother. By the 1920s, registrars of births, deaths and marriages provided a copy of his booklet *The Expectant Mother, and Baby's First Month*, free to every young man who applied for a marriage licence. The 1923 Australian edition of 20000 copies paraded his motto: 'Perfect motherhood is perfect patriotism'.21 The future mother who abided by his rules for regularity of all habits, kept strong and healthy and kept her blood pure by avoiding constipation through taking exercise, breathing fresh air and eating good, plain food, who avoided tight clothing and that 'latest invention of the devil', the modern brassiere, because it flattened the chest, would give birth, allegedly, to a healthy child, whom she could feed as nature had designed.22 After hearing Truby King speak in New Zealand, Melbourne's Dr J.W. Barrett christened his friend's efforts in baby health an exercise in 'practical eugenics.'23

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20 Truby King, 'Eugenics', TAMC, 1914, pp.83-4
21 Frontispiece, *The Expectant Mother, and Baby's First Month*, Sydney, 1923; Mein Smith, *Maternity in Dispute*, p.23
22 Truby King, *The Expectant Mother*, 1916, 1923 and 1925 eds; brassiere from 1925 ed, p.14
The prophet's philosophy was pronatalist: he decreed that the Plunket Society would do all it could 'to encourage and promote increase, not diminution, in the size of the family.' His aspirations to lower the infant death rate and increase family size were consistent only in theory. In a pamphlet written for New Zealand's first Baby Week in October 1917, he described the Plunket Society as 'one of the first organisations in our Empire to recognise the germ of degeneration that had begun to sap our own vitality. It saw that if we could not do anything in the meantime to check the falling birth-rate, we could do something locally to lower our infant death-rate, and to improve the mental and physical characteristics of our future generations'. In doing so he revealed that, like the Commissioners on the Decline of the Birth Rate in New South Wales before him, he had lost sight of the correspondence between a low birth rate and a low infant death rate, a correspondence that was increasingly dismissed as false and old-fashioned. He redrew the Australian Octavius Beale's dramatisation of the plunging birth rate in 1918 to show how the British were becoming submerged beneath the 'advancing cloud of extinction' - a phrase which Hicks has described as a 'novelty' in Beale's work. At the same time, he refurbished Beale's design and propaganda, and renamed his 'line of dissolution' the line of 'national annihilation', as depicted in Figure 9. Truby King, too, undermined the cause of better health by denouncing birth control as a 'crime'. On the contrary, as F.B. Smith has argued, 'more lives saved and enhanced among a smaller crop of babies' would - and did - improve health chances.

24 Mein Smith, *Maternity in Dispute*, p.110
25 Truby King, *Save the Babies*, p.8
26 See chap 2
28 Argus, 5 Dec 1919, p.6
ENGLAND & WALES
DECLINE IN BIRTH-RATES
DURING 40 YEARS

BIRTHS PER 1000 PEOPLE

Source: RNZSHWC, Central Council and Dunedin Branch, *Annual Reports*, 1920
While Truby King's work with the insane informed his wider ideology, his baby routines were, in part, an outcome of his work with animals at Seacliff. He saw for himself on the asylum's farm that calves benefited from natural feeding. Quoting Spencer, he proclaimed: 'To be a nation of "good animals" is the first condition to National prosperity.' If mothers followed the 'perfect example and precise guidance of nature', they would 'increase the strength and vitality of the rising generation' by conserving their babies' lives and keeping them well. The feeding of children, even more than the feeding of animals, demanded 'system and accuracy', for half of the infant mortality and most of the debility and sickness in the young, he argued, could be attributed to wrong feeding. 'The problem of right or wrong feeding and nutrition in early infancy', he admonished Australians in the 1920s, 'is the main determinant of the health and fitness of the being throughout life, and largely determines the fate of the race.'

Suckling was the 'only perfect method of feeding any young mammal'. Yet he believed, like many doctors, that it had become exceptional for mothers to breast feed. Instead they raised the 'ignorantly and cruelly nurtured ... average infant' on cows' milk, condensed or dried milk, or worse, patent foods. Mothers, he said, had been deluded by ignorance into imagining that 'advertising charlatans' had 'superseded Providence in the feeding of babies.' His goal was that of the infant welfare movement, to persuade women of the 'transcendent importance' of breast feeding. In

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31 Truby King, 'The Application of Science, Simplicity and Economy to the Everyday Practice of Artificial Feeding during Infancy', NZMJ, vol 20, no 95, Feb 1921, p.33, Feeding of Plants and Animals, p.8
32 Truby King, Feeding of Plants and Animals, p.5, Feeding and Care, 1917, p.19; Truby King to ed, Argus, 17 Feb 1923, in City of St Kilda Papers, and City of Footscray, H/6, SHWC, 1922-6; Truby King's draft letter, worded slightly differently, is filed with Dr Springthorpe's Communications, Being Papers Connected with the Setting Up of the SHWC in Victoria, Australia, 1919-29, PS AG7/127/923
September 1905 he launched his natural rearing campaign in New Zealand before a Farmers' Union audience. For cows or babies interchangeably, 'Nutrition given by the mother in the natural way is always best,' and, he added, 'the wisest breeders will continue to let Nature have her way where they wish to keep their pure-bred stock at the highest pitch of health for the perpetuation and improvement of the best strains.' A Truby King or Plunket baby, then, secured its birthright of breast milk, 'pure, fresh, living, and blood-warm', which it sucked exclusively, or partially, if modern life so conspired, for the first nine months. Exceptions were rare; tuberculosis provided the only acceptable grounds for failure to breast feed. If mothers chose to evade their duty, they could expect to succumb to gynaecological complaints, because maternal nursing restored the womb.

'Nature's Milk Recipes' also set the standard for the bottle fed. Truby King prescribed a single choice for the artificially fed baby: 'humanised' milk, that is, cows' milk modified by the American methods to resemble as closely as possible the milk of the average healthy mother. Scientific mothers, and farmers, shared a moral duty to prepare the best substitute for the milk 'specially designed ... by the Creator':

- Whale's-milk for the Baby-whale,
- Rabbit's-milk for the Baby-rabbit,
- Cow's-milk for the Calf, and
- "Mother's-milk" for the Baby.'

This was the American 'percentage feeding', which adjusted the percentages of protein, fat and sugar in cows' milk to the human average. The method required the mother or nurse to dilute the milk with water to reduce the

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35Truby King, *The Components of Various Milks*, bound with *Natural Feeding of Infants*
36See chap 4
protein content and then top up the thinned mixture with milk sugar and fat, or first to increase the fat and then add water. The prophet's 'No.1' recipe which he promoted to the end of the Great War, consisted of:

**Humanised Milk**

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Top Milk&quot;</td>
<td>10 oz</td>
</tr>
<tr>
<td>Whey (must be heated to 155° F)</td>
<td>12 oz</td>
</tr>
<tr>
<td>Lime Water</td>
<td>1 1/2 oz</td>
</tr>
<tr>
<td>Sugar of Milk</td>
<td>1 oz</td>
</tr>
<tr>
<td>Boiled Water</td>
<td>6 1/2 oz</td>
</tr>
</tbody>
</table>

The mother or nurse pasteurised the milk at 155° F and left it to set, or stand, in a cool place for seven hours (less in hot weather) before skimming off the top milk. She used the remainder to make whey, which helped the baby's digestion. The baby then progressed to Truby King's standard formula (No.2), based on top milk only. After the war, he developed an emulsion of oils and fats which simplified the method. Either way, the purpose was to prevent digestive upset.

Mothers had 'no right to experiment'; those who fed their babies cows' milk, Truby King instructed a Sydney audience in 1919, made their babies 'conform to a standard God Almighty had made for the cow'. Such flagrant violation of the laws of nature could only be expected to result in diarrhoea. Condensed milk and patent foods were 'still more injurious'; babies fed these nostrums inevitably succumbed to diarrhoea because they were 'built out of the wrong stuff'.

This regimen of infant feeding derived from the 'Boston School'. Truby King, however, improved upon the Americans' milk modification methods by incorporating into his feeding formulae the German findings of

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37 Truby King, *Feeding and Care of Baby*, 1917, pp.23-5, 29; in his early version of this recipe, the mother left the milk to set for longer, i.e nine hours; *The Feeding and Care of the Baby*, 1908, pp.5, 7
38 Truby King, *Feeding and Care*, 1917, p.19; 'Don't Experiment' was first ordered in the 1910 ed, p.17; *SMH*, 18 Dec 1919, 19 Dec 1919; *DT*, 19 Dec 1919, RSWMB, 11/1
von Reubner in the 1900s on the caloric or energy values of food, so that the baby's calorie intake served as an arithmetical check that it received the percentages of protein, fat and sugar necessary, at its age and weight, for 'steady' growth. In other words he merged the American and German methods so that the baby obtained the right amount. Australians were impressed by his caloric calculations and copied them in the 1920s. Contrarily, they rejected humanised milk from the 1910s, when percentage feeding was falling out of favour in the United States, and just when Truby King adopted the term and the recipes as his own (Truby King's impact in Australia is discussed in Chapter 6).

Following Newsholme in England and Emmett Holt in the United States, Truby King preached the theory of domestic infection. In his own experience a good town milk supply did not guarantee safe artificial feeding, because on every occasion where milk disagreed with a child he found that the main fault resided in the home. He later told Victorian dairymen that there was 'no absolute ... answer' as to whether milk should be pasteurised, because of the likelihood and danger of doing it wrongly, and because the process was expensive. This suggested that there were faults with the milk before it reached the house. His answer was to teach mothers to pasteurise milk at home, as Holt prescribed. Immediately the morning milk arrived, if the milk was suspect, the mother heated it to 155° F, maintaining the temperature with the aid of a thermometer for five to ten minutes, before cooling it rapidly in a muslin-draped jug. She repeated the procedure three

41 The best secondary source on feeding methods is Apple, Mothers and Medicine, chap 2
42 The loss of interest in percentage feeding is discussed in Apple, Mothers and Medicine, pp.33-4
43 Truby King's handwritten comments on the pamphlet of his New Zealand rival, Agnes Bennett, Baby's Welfare, opp. p.14
or four times in 24 hours.\textsuperscript{44} In theory the method was a safety measure but it could become the opposite if not strictly followed.

Pasteurisation and boiling, and Truby King's instruction to mothers in 1908 to replace the long-tube feeder, that 'slimy sewer lined with microbes', were necessary to preserve not only the baby's physical health, but its moral purity.\textsuperscript{45} Good health was posited as a reward for practising his code, but it signified much more; good health denoted the means to goodness, defined as good character, conduct, and self-control. There is strong evidence to support Olssen's thesis that control and discipline were central to his philosophy and 'without good health neither could be achieved'; it was the mother's duty to 'impart 'character', and sound character depended on health.\textsuperscript{46} It is important to remember that Truby King was an authority on nervous diseases. As such, he imbibed strict materialist interpretations of pain and illness as distributed through the body and of the 'mediating role of the nervous system', which denied clear distinctions between sickness and health, body and mind; on the contrary, the mind was utterly dependent on the body.\textsuperscript{47} There is support, too, for Olssen's argument that the prophet fused post-Darwinian science, with its faith in positivism, and traditional Protestant moral edicts. His doctrine, in transferring responsibility for every action to every individual, embodied active puritanism, for which health was synonymous with restraint. His health mission was, indeed, an exercise in secular piety, proffering the prevention of infant death as a divine reward, bestowed on mothers for adherence to his regime of natural law.

\textsuperscript{44}Deputation, 6 Dec 1919, 'Welfare of Infants. Great Expert's Visit', PS AG7/127/923; Truby King, \textit{Feeding and Care}, 1917, pp.19-23
\textsuperscript{45}Truby King, \textit{Feeding and Care}, 1908, p.32
\textsuperscript{46}Olssen, 'Truby King and the Plunket Society', p.7
\textsuperscript{47}Roy Porter, 'Introduction', in R. Porter (ed), \textit{Patients and Practitioners: Lay Perceptions of Medicine in Pre-Industrial England}, Cambridge, 1985, pp.7, 9; Truby King, for example, delivered a paper entitled 'Structural Changes in the Nervous System Accompanying Mental Diseases', to the Intercolonial Medical Congress (later Australasian Medical Congress), Dunedin, 1896
But there is less evidence that Truby King represented the 'new science of the future'. As Olssen acknowledges, much of his instruction was soon outmoded.48

His appeal, however, derived more from his pedagogy. Truby King employed Emmett Holt's catechismal method to make his message 'clear and simple'.49 Mothers who followed his 12 rules, recited by his disciples in Australian women's magazines in the 1920s, would produce his ideal type of average man or woman - an ideal that conformed to the well-fed reality rather than the fashionable stereotype, which was already becoming skinny. His model for a healthy race had 'shapely feet, good limbs, broad hips, deep chest, square shoulders, good muscles, graceful, easy carriage, and aspect of radiant health and perfection'.50 More than this, the healthy child reared to his 12 essentials, who was put out in the fresh air, given water (boiled), fed mother's milk or the best substitute, humanised milk, for the first nine months, dressed in 'non-constrictive' clothing, bathed and dressed quickly (no dawdling), given massage (not cuddles, but 'muscular exercise and sensory stimulation'), kept warm, taught regularity of all habits, drilled in cleanliness, whose mother learnt mothering and how not to 'spoil' her baby by bad management (in 1913, with the arrival of mothercraft, 'mothering' and 'management' were added to the list), and who was trained in ordered rest and sleep, would be of sound character and pure in thought. In short, a baby reared to Truby King's 12 rules would follow the "Ten Commandments".51

48 Olssen, A History of Otago, p.152
49 Truby King, Feeding and Care, 1908, pp.8-9, Story of the Teeth, p.7; cf. Holt, Care and Feeding of Children, 3rd ed, pp.1-4, where Emmett Holt described his manual as a catechism, using question and answer to impress clearness and simplicity.
50 Truby King, The Beautiful Babies. What Becomes of Them?
Rule 8 in particular is a microcosm of Truby King's code of motherhood. 'Perfect regularity of habits, initiated by "Feeding and Sleeping by the Clock"', the prophet pronounced, 'is the ultimate foundation of all-round obedience.' On obedience depended all later powers of self-control. Mothers must fulfil the 'primary laws of Nature' by ascribing to his regimen of what, how much and when to feed; if they did not, they could expect to produce a "simply-won't" in infancy, who would become a 'selfish simply-can't' in later childhood and adolescence. Power to obey the "Ten Commandments," or to conform to the temporal laws and usages of Society,' he exhorted, 'is not to be expected of "SPOILED" babies when they reach adult life.'52

Olssen has described how Truby King's diatribes on constipation demonstrate that regularity of habits was essential for health, viewed holistically, but my purpose is to recognise that a constipated child was thought to be but one step away from diarrhoea: 'babies readily pass[ed] from one extreme to the other.'53 Unsystematic intestines accordingly had to be trained. Again following Holt, mothers were instructed not to 'let 10 o'clock in the morning pass without getting [baby's] bowels to move ...'; those who ventured to protest that their babies' bowels would not 'move at a certain hour' were told: 'MAKE them move.'54 The baby was potty trained early; from its second month the infant had to be held out over a pot twice a day, where it sat, propped on its mother's lap, until success was won and the habit ingrained. 'Holding out' a baby in theory meant fewer dirty nappies to wash, a cleaner house and baby. But only mothers with time, or with nursing help, could have sat 'holding out' their newborn at the same

52Truby King, Feeding and Care, 1910, pp.135-6, 1917, pp.36-7, 149, Expectant Mother, 1916, pp.36, 50, Story of the Teeth, pp.42-3; Olssen, 'Truby King and the Plunket Society', p.4
53Truby King, Feeding and Care, 1917, p.111
time twice a day, potty between knees.\textsuperscript{55}

The new routines included both 'Do's' and 'Don'ts', of which the most heinous was to resort to that 'iniquitous and filthy contrivance', the dummy. For Truby King, the mouth, jaws, teeth and nose were the 'gateways' to health or disease. Parents who opted for the dummy chose 'physical deterioration'; the dummy deformed the baby's mouth and jaws, spoiled its digestion with constant sucking and dribbling of saliva, and caused thrush, diarrhoea, colic and adenoids. A child with a dummy might appear undamaged, or even normal; but 'he will not be what he might have been.'\textsuperscript{56} A child forbidden a dummy could, however, exercise its jaws on a bone.

The baby was not allowed to sleep with its parents. Truby King repeated that 'A BABY MUST NEVER SLEEP IN BED WITH ITS MOTHER,' as it risked being overlaid or suffocated, or poisoned by muggy air; stuffy rooms in general invited chills, which were thought to be an 'exciting cause' of diarrhoea.\textsuperscript{57} The family had to have room to keep the baby in 'pure, cool, fresh, free-flowing air at night' in its own wicker-work basket cradle (by 1917 this had acquired legs, and become the Plunket cot). Truby King acknowledged that mothers opposed a separate room for the baby, and so devised a makeshift hinged screen which, at night, could separate the infant from the pernicious influence of its parents, even in a cramped tenement or cottage.\textsuperscript{58} His rules required a certain amount of space: at minimum one bed per person. The move to the suburbs helped to give these ideas a following. So did smaller families; housing stock stretched inwardly as

\textsuperscript{55}Truby King, \textit{Feeding and Care}, 1908, pp.19-21, 1917, pp.62, 92
\textsuperscript{56}Truby King, \textit{Expectant Mother}, 1916, p.50, \textit{Feeding and Care}, 1917, pp.127, 140-1, \textit{Story of the Teeth}, p.8. 'Dummy' was a pejorative term, dating from 1845. Made of hard rubber, the first versions, as their name suggests, would have done no more than silence the child. Advocates used the term 'comforter' (1898). See \textit{OED}
\textsuperscript{57}Truby King, \textit{Feeding and Care}, 1908, p.19, 1910, p.55, 1917, pp.38, 64-6, and frontispiece, \textit{Story of the Teeth}, p.38
\textsuperscript{58}Truby King, \textit{Feeding and Care}, 1917, pp.64-6 and frontispiece
average family size fell. In New Zealand, the average number of persons in a house declined from five in 1891 to four in 1921.59

Today Truby King's name is associated with the prescription of "Feeding and Sleeping by the Clock" (Figure 10). This reached its apogee in the 1920s and 1930s. By this time the regimens, first two-hourly, then three or four-hourly, had become procrustean. In 1908, Truby King himself enjoined the turn-of-the-century fashion against which he later inveighed, of feeding two-hourly between 6 a.m. and 10 p.m., which amounted to ten feeds in 24 hours, while he gave mothers some discretion over feeding at night. This changed in 1910 with the publication of the second edition of his *Feeding and Care of Baby*, which included the celebrated diagram of the clock. By 1913, in the first English edition of the book, the timetables had set into the pattern of feeding three or four-hourly, waking the baby up if necessary, with no feeds at night; the 'young of other mammals' were not 'suckled at this time.60 This pattern, of feeding the baby six times in 24 hours, at 6 a.m., 9 a.m., 12 noon, 3 p.m., 6 p.m. and 10 p.m., or five times from the fifth month, at 6 a.m., 10 a.m., 2 p.m., 6 p.m. and 10 p.m., remained fixed in his code for 20 years until, in 1937, disciples updated his schedules to feeding four-hourly from birth.61

We have seen how feeding was timetabled to prevent diarrhoea. Clockwork feeding encouraged regular bowel movements. Conversely, over feeding, out of anxiety that something might be wrong with their breast milk, was 'the commonest of all mistakes made by nursing mothers'.62 It

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59 NZ Census Reports, 1911, 1916, 1921
61 Truby King, *Feeding and Care*, 1937, pp.18-19. Four-hourly feeding was by then over 100 years old. Truby King observed in *Natural Feeding of Infants*, p.22, that Dr Thomas Bull, for example, had advocated four-hourly feeds in Britain in the 1840s; cf. Wickes, 'A History of Infant Feeding', *Archives of Disease in Childhood*, vol 28, 1953, pp.335, 338, who cited further the example of Dr Hugh Smith, 1792
Figure 10  Feeding by the Clock

- 24 -

Hour Clock

Showing

Times for Food, Bath, Sleep, and Exercise

For Baby

One Month Old

- 24 -

Hour Clock

Showing

Times for Food, Bath, Sleep, and Exercise

For Baby

Five Months Old

Noon

12 11 10 9 8 7 6 5 4 3 2 1

Sleep

Food

Bath

12 11 10 9 8 7 6 5 4 3 2 1

Sleep

Food

Bath
was this practice that Truby King, like his Australian colleagues, blamed most for the apparent abandonment of breast feeding and for the heavy incidence of diarrhoeal deaths in artificially fed babies. The Plunket Society’s poster advertising New Zealand’s first Baby Week in October 1917 recited the well-known fact: ‘SUMMER DIARRHOEA among bottle-feds is the main cause of death in infancy.’ Spaced feeding times additionally served as a strategy to avoid weaning in hot weather, at a time when digestive upsets in the baby and exhaustion in the mother were most likely to lead, in exasperation, to the bottle and its concomitant dangers. The mother who fed three or four-hourly enjoyed ‘longer intervals of unbroken rest and sleep’. Eight hours’ sleep for mother and baby reduced risks and discomforts. Established in its ‘proper rhythm’, the baby ate and slept well, which gave the mother more time to ‘manage the household chores’ efficiently.64 By 1917, Truby King was declaring that the strain imposed by the custom of feeding ten times in 24 hours had contributed to the fall in the birth rate. His schedules were designed to counteract this trend: contented mothers, as well as being better mothers for being regular and systematic, were more likely to be imbued with the desired ‘lofty view’ of the ‘natural calls of motherhood’ if they had time to spare for the accompanying responsibilities.

The competent household executive, married to a professional or businessman, in theory gained dignity from her new managerial status and from her traditional role as ruler of the font of morality, the home. From the hearth she disseminated the gospel of motherhood, handing on

63Poster, ‘Save the Babies’ Week
64The quotation about household chores is taken from my own Plunket book, 1956; otherwise refer Natural Feeding of Infants, p.23, Feeding and Care, 1917, pp.36-7
65Plunket Society’s first object, RNZSHWC, Rules, 1916, p.1; this object probably owes a debt to Froebel, whose aim was ‘to make women eager to fit themselves for their sacred responsibilities as possible future mothers of the race’, Elinor A. Welldon, ‘Froebel’s Principles as Applied to the First Years of Child-Life’, Parents’ Review, vol 1, 1891, p.26
knowledge to family, neighbours and friends. But the axiom in *Feeding and Care of Baby*, drawn from eugenist Dr Caleb W. Saleeby's book *Parenthood and Race Culture* (1909), that the 'destiny of the nation [is] in the hands of the mothers' was as much a reprimand as a promise of salvation.

Medical systematisers who wrote these rules blamed women's ignorance for infant deaths; they argued that babies might survive poverty and bad sanitation, but they could not survive inept mothering. According to Truby King, 'The main cause of modern bodily unfitness and inefficiency lies with our women, and is due not to indifference on their part, but to lack of the necessary knowledge ... [of] the laws of healthy living', which he interpreted from Florence Nightingale's famous *Notes on Nursing*. Periodically he hammered out the words of his mentor that the laws of health "do not come by inspiration to the loving heart ... And terrible is the injury which has followed ... from such wild notions." In the spirit of Nightingale, Truby King aimed to make every woman a nurse by instruction in mothercraft, which he defined as science, simplified as 'crystallised commonsense'. Mothercraft would be the 'saving of the race'. While a young woman might be forced by circumstances to earn her living, he argued that 'her part in industrial, professional and educational life should not militate against her success as head of a household later', as the 'natural destiny of a woman' was a home and family. In brief, he planned to make every woman the 'capable executive in her own home.' This required that he 'bring back to women' the self-confidence they had lost through civilisation, a sense of inadequacy he construed religiously, as a loss of 'Faith

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in the Almighty.'

To instruct women where instinct had failed, Truby King provided the Plunket, or infant welfare, nurse, and Karitane, or mothercraft, nurse. These health missioners assumed especial importance in his scheme because of the hostility that he encountered from doctors. The Plunket nurse was the descendant of the English health visitor. A trained midwife or general nurse, she paid £15 for her three to six months' infant welfare training at the Karitane hospital in Dunedin (registered nurses took the shorter course and midwives stayed six months). The vanguard of Truby King's educational health mission, the Plunket nurse replaced untrained, unskilled neighbours or relations in ministering to mothers at Plunket rooms, and visiting them at home. She gave sound advice, dutifully, free of charge to anyone who sought it about the health and well-being of women and children. At the same time, she was groomed to give the advice an English head nurse offered the wealthy. Borrowing Emmett Holt's American model of the Practical Training School for Nursery Maids opened at the New York Babies' Hospital in 1889, Truby King then merged the nursery maid with the English lady almoner to create a second type of nurse, the Karitane nurse, to assume this role. These nanny substitutes, whose families paid the handsome fee of £20 for their daughters to be taught how to care for well babies in private homes, enhanced the status of Truby King's Karitane hospitals by converting them into finishing schools for the well-to-do. A Karitane course for the educated girl lasted one year. Schooled herself as a competent executive, the young Karitane nurse from a good home instructed her equally or more privileged employer in her mentor's rules for rearing disciplined children, and at the same time released her from

69Truby King, *Natural Feeding of Infants*, p.7; *Argus*, 2 Dec 1919, p.7; *Una*, 30 Dec 1919, p.310; 'Great Expert's Visit', PS AG7/127/923; *Dominion*, 29 Aug 1921, 27 Apr 1922

70On Truby King's 'cool reception from the profession', see 'Editorial. The Plunket Society', *NZMJ*, vol 37, no 200, p.185
some of the worse chores of the nursery.  

**ATTRCTIONS**

Truby King, true to the cult of the businessman and the cult of true womanhood, had his most fervent following among comfortably off people. Converts, men and women, found in his ideas an expression of conservative fears and a renewed sense of purpose: he uplifted as he admonished, and terrorised in portending, while promising to teach mothers to stem, national decay. His regimen expressed the ethos of the time. It offered a panacea for death and social ills, and consoled the anxious with its preventive prescription, especially in a period deeply affected by war. The prophet both articulated and soothed public alarm. In wartime he summoned imperial unity: 'Upon Britain depends the civilisation of the world. The defeat of Britain means the death of liberty .... [The Plunket Society's] example will be followed, and our Empire will become greater and be more worthy of the homage that will be paid her by all the nations of the world through endless generations.' His regime appealed broadly to conservative parties, responsive to his imperialist catechism, and to Labour parties exalted by the ideal of a welfare state built on the assumption that women's role ought to be motherhood.

His evangelical mission for mother and child enthused idealists, and pragmatists, for whom more babies surviving denoted capital gain. At home, both public and private coffers opened to him. A series of conservative New Zealand governments paid out a subsidy of 24 shillings to the pound, up to £100 for each Plunket nurse, to further the Society's 'patriotic and educational' work. While the government came to foot one-

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72 Truby King, Save the Babies, pp.3, 9
third of the Society's bill, much of the other two-thirds was financed by Truby King's family milieu, the banking and business community, in the form of subscriptions, donations, and fees paid, as trainee mothers and nurses, by their daughters and wives. Truby King's name, an Australian disciple would later describe as an 'open sesame' to the profits of commercial men impressed by his exposition of their fears and ideals.73

The crusade for the infant generally attracted members of the colonial élite and conservative thinkers because it glossed over the problem of poverty. Mothercraft did not threaten the status quo by requiring a social revolution for the infant mortality rate to fall. Rather, it circumvented the difficulty that the infant death rate varied with class and income. Improved care could break the chain of causation between a family's poor economic circumstances and high infant mortality.74 Truby King placed 'the mother's unpreparedness and ignorance' ahead of poverty; lack of 'training for motherhood', he declared, was 'NOT a class question but a universal failing of civilised communities.'75 Ironically this argument recognised the importance of women's education, though it imposed traditional barriers on what ought to be taught. It attracted people who wished to raise the status of all mothers without disturbing class differentials.

The Plunket Society, enthusiasts insisted, was not a charity, but a patriotic movement for the education of all people, without trace of the trappings of patronage or class or religious discrimination. To guarantee that the Society would retain its democratic framework, and reach a wider range of homes, Truby King drew up the 'Plunket Square' (Figure 11). This delineated membership of local committees by religion: as Anglicans,

73RNZSHWC, Annual Report, 1912-13, p.8; Administrative Secretary, Plunket Society to Minister of Health, 10 Jun 1930, NA H1, 127 B.81; Truby King League of Victoria, Annual Report, 1936-7, p.7; Olssen, 'Truby King and the Plunket Society', p.6
75Truby King, Plea for the Drawing Up, p.3, New Zealand Scheme, p.4
THE PLUNKET SQUARE
MAKE & KEEP THE COMMITTEES FULLY REPRESENTATIVE

MEMBERS REPRESENTING

PUBLIC PROF BUSINESS WORK
Artizans
Farmers
Gardeners
Labourers
Wholesale
Retail
Banking
Managing
Agency etc
Engineers etc
Doctors Dentists
Nurses
Lawyers
Clergy Teachers
MPs & Mayors
Civil Servants

RELIGIOUS BODIES
ANGLICANS
JEWs
NONCONFORM
PRESBYTN
ROMAN CATH
SALV ARMY
YMCA YWCA
OTHERS

DIRECTLY A MEMBER DROPS OUT PUT ANOTHER IN CITY BRANCHES NEED SUBURBAN REPRESENTATIVES

Source: Henrietta Main and Vera Scantlebury, Report to the Minister of Public Health on the Welfare of Women and Children, 1926
Presbyterians, Nonconformists, Roman Catholics, Jews, members of the Salvation Army, Young Men's and Women's Christian Associations, and other denominations; and by occupation, drawing in working people - the wives of artisans, farmers, labourers; five categories each of business and professional people active in retailing, banking, engineering, law, medicine, the Church and teaching; and two categories where the husband worked in public life, as a politician or public servant. The weighting to business and the professions indicates the objects of his propaganda. Disciples rallied at the Plunket Society's annual conference in February 1917 were acclaimed by their seer as '... the finest and most intellectual body of women ever brought together in the history of New Zealand - wives of Cabinet Ministers, of Judges and of the leading professional and business men in our Dominion - all banded together to promote the welfare of their sex, the preservation of infant life and ensure racial physical and mental progress.'

From the beginning the Plunket message had its deepest resonance among society women. Truby King inspired 'ladies of position and means'; he helped to make converts by appealing to faces in the women's pages, and deliberately cultivated socialites in the belief that 'knowledge percolates downwards'. 'Better ways of living', he asserted, could flourish only if adopted first by the 'more thinking and well-to-do classes'; the more capable 'must "set the fashion," and, if they do, they may be very sure that ... personal healthy living and doing justice to offspring will spread like any other fashion, from above, downwards, and outwards, to those who are not so well off.' The implicit irony was that the well-to-do were the ones who were contracepting most keenly. The irony is magnified by Australian

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76 Truby King, *Save the Babies*, p.4, *For the Sake of Women and Children*; Plunket Society, *Annual Report*, 1912-13, p.8, 1930, p.12, and *Aims and Objects*
78 Truby King, *Plea for the Drawing Up*, p.3
evidence which shows that women most likely to be attracted to his code, married to men in business or the professions, and Protestant, had limited their families since at least the 1880s. Yet the prophet's declared aim for the Plunket Society was 'to make the perfect rearing of several healthy children less irksome in the future than the faulty rearing of one ailing child has proved in the past.'

Adept at charming women, Truby King believed that he had gained a following among 'intelligent' housewives who had demonstrated that they were capable of carrying out his instructions, and willing to take the necessary time and trouble. The ex-banker deliberately wooed young married women in the hope that their husbands might 'read and follow with absorbing interest' and donate funds. It is reasonable to speculate, as Olssen does, that his regimen gave mothers who had to scrub their own floors 'a sense of cosmic importance' at a time when domestic help was becoming harder to find, and new household gadgets for the few who could afford them increased expectations of the amount to be done. Olssen argues that Plunket appealed to women who in a mobile, urbanising society were less likely to have family support. New Zealand in the early twentieth century was an isolated country of small towns and provincial centres, without a metropolis to compare with Australia's Sydney and Melbourne. Between 1901 and 1936 the proportion of the population resident in a town of more than 1000 people rose from 45 to 59 per cent; by 1911 30 per cent of the European population lived in the four main centres, rising to 36 per cent by 1926. When the prophet went to London in 1913 to tell the English-

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79 Larson, 'Growing Up in Melbourne'; Ruzicka and Caldwell, The End of Demographic Transition in Australia. See chap 2
80 RNZSHWC, Central Council and Dunedin Branch, Annual Reports, 1920, inside cover
81 Truby King, 'Physiological Economy', NZMJ, vol 6, no 24, Nov 1907, p.89
82 Truby King, New Zealand Scheme, pp.5, 7
83 Olssen, 'Truby King and the Plunket Society', pp.10, 21
84 Olssen, 'Towards a New Society', in W.H. Oliver (ed), The Oxford History of New
speaking conference on infant welfare about his crusade in New Zealand, he reported that the Plunket Society had branches in 70 centres, run by local committees backed by an earnest and influential membership.\textsuperscript{85} The Bishop of Wellington, a recent immigrant, reflected in his funeral eulogy in 1938 that one outstanding feature which distinguished New Zealand from other countries 'is the mark that one great personality has left upon it. Every city, every town, and every considerable township ... has given me evidence of the activities of [the] Plunket Society'.\textsuperscript{86} From Dunedin, and Wellington, the message went forth in newspaper and journal columns, while Truby King toured the country and his wife conducted a voluminous correspondence with women in isolated rural districts and overseas.\textsuperscript{87}

The apparent success of their scheme, measured by New Zealand's low infant mortality rate, enlarged the numbers of the faithful. The Plunket Society benefited from having been founded in 1907, a bad epidemic year, indeed the very year that marked the end of severe epidemic fluctuations in the infant mortality curve. By the time that Truby King arrived in Australia at the end of 1919, the New Zealand rate had almost halved since 1907, from 89 per 1000 live births (excluding Maoris) to 45. Deaths from infant diarrhoea fell faster still, from a recorded total of 336 for the three years 1908-10 to 87 by 1917-19. In Dunedin in 1918, not one child under two died of diarrhoea.\textsuperscript{88} To contemporaries, it seemed that such dramatic results could only be explained by the activities of the Plunket Society.

\textit{Zealand}, pp.254, 258

\textsuperscript{85}This figure included sub-branches, Truby King, \textit{New Zealand Scheme}

\textsuperscript{86}\textit{Dominion}, 11 Feb 1938

\textsuperscript{87}Truby King, \textit{For the Sake of Women and Children}; Elizabeth McMillan to Mrs Truby King, 10 Apr 1920, PS AG7/128/931

CONTRADICTIONS AND DIFFICULTIES

The contradictions and difficulties inherent in his rules, however, suggest that more fundamental changes engendered the decline. The 'natural and healthful regimen' of feeding babies at strict times with a strict amount was utterly unnatural, as Reiger's work demonstrates about the routines generally. Screaming babies testified that mothering could not be set by the clock.89 Though Truby King's own life was erratic and nocturnal, perhaps because it was so, he sought to indoctrinate mothers in a timetabled life of Spartan simplicity. From the Karitane cottage, and the weatherboard villa where the Dunedin hospital was relocated, grew the myth that every regimental detail performed in the hospital could be carried out at home.90 Truby King deliberately expressed his prescriptions as a cluster of 'hard-and-fast rules', which ostensibly were easier for mothers to follow. But his procedures were in practice complicated. Use of a thermometer to pasteurise milk at home illustrates the difficulty; to maintain milk at a temperature of 155° F for five or ten minutes can have been no easy task on a wood stove or coal range, especially when mothers had to fulfil this command four times in 24 hours.91 Theoretically, his rules saved time, but in practice they demanded time which could be ill-spared by mothers raising young families on small incomes.

Humanised milk, represented as cheap, moreover, was expensive. The early recipes required milk sugar rather than cane sugar, which until Truby

89Truby King, Feeding and Care, 1917, p.37, Natural Feeding of Infants, p.7; E.P. Thompson, 'Time, Work-Discipline, and Industrial Capitalism', Past & Present, no 38, Dec 1967, p.79; Reiger, The Disenchanted of the Home, chap 6, also highlights the contradiction between the goal of the infant welfare movement, of natural mothering, and the unnatural outcome
90Truby King, New Zealand Scheme, p.10; Mary King, Truby King the Man, p.162
91Truby King, Feeding and Care, 1908, p.8, 1917, p.20, New Zealand Scheme, p.5. The difficulty of pasteurising milk as instructed has been confirmed by my grandmother, who maintained that it would have been impossible to keep the thermometer at 155° F. She guessed when using a wood stove, inserting her hand to check the oven temperature; wood stoves were hard work, and took an hour to clean before use early in the morning. Interview with Mrs M.I. Smith, Palmerston North, 16 Feb 1987
King began to import lactose from England, retailed in Dunedin at five shillings a pound when cane sugar cost 3d. Even at one shilling a pound, the retail price until 1914, after which it doubled to two shillings, milk sugar was beyond the reach of poor working-class families. So too, were the later 'Karitane Products' for making up humanised milk: 'Karilac' (sugar of milk) and 'Kariol' (an emulsion of fats and oils) which retailed at 1s 5d and 2s 6d a pound respectively in the 1920s.92 When Vida Maclean, matron of the Karitane hospital in Auckland, visited Melbourne in 1930, she explained that the whole idea of the Plunket Society was to establish a uniform system throughout the world so that a mother who moved to a new district, 'or even a new country', would not suffer the turmoil of conflicting advice.93 This itself suggests that Plunket routines best suited the privileged.

Even when much of it was not his, Truby King's propaganda was more commanding than that of his competitors. As he grew more famous, he lapsed more frequently into plagiarism. After 1908, for example, he neglected to acknowledge as Holt's the rule not to 'let 10 o'clock in the morning pass without getting [baby's] bowels to move ...'.94 But the historian should not be too harsh on him for not being a totally original thinker. He had no need for this strength. Rather, he saw that he had an important role to perform as a synthesiser and publicist, giving forceful expression to the rules for healthy living central to the crusade for the infant. From Budin, from Rotch, from the new science and old adages, Truby King packaged a system that had enormous appeal in its detail and in its illusion of simplicity. In the beginning he took his ideas from the Americans; but he soon turned his attention to England where Dr Eric

92 Truby King, *The Karitane Products Society*, pp.3, 5
Pritchard had earned a reputation for his infant feeding methods.

PRITCHARD

Pritchard was a leading British exponent of mothercraft. He, more than Newsholme, saw mothercraft as the solution to inept mothering, and attributed the fall in infant mortality not to sanitary reform or to the standard of living but to the discovery of the mother by the infant welfare movement. Like Truby King he believed that young mothers of all classes were ignorant; and his own manner with mothers was accordingly strict.95 This English authority came to notice in 1904 for his book *The Physiological Feeding of Infants*. His work as health officer for the borough of St Marylebone from 1906 followed; copying Budin in Paris, he established at the St Marylebone General Dispensary the first 'infant consultations' in London. He emphasised mothercraft education rather than the supply of sterilised milk, however, lecturing health visitors of the St Marylebone Health Society in what to instruct mothers. These lectures became, in 1907, another book, *Infant Education*. Subsequently Pritchard was appointed medical director of the Infants' Hospital in London and the first paediatrician to Queen Charlotte's maternity hospital. He was king pin during the war, as leader of all the voluntary infant welfare organisations in England, and chairman of the executive committee of the National Baby Week Council, formed in 1917. Pritchard described himself as an Oxford man. Clearly he was not someone who liked to be crossed by a colonial upstart. Yet, as head from 1913-37 of the Association of Schools for Mothers and Infant Consultations (later the Association of Maternity and Child Welfare Centres, used by Australians as a model) he organised the first English-speaking conference on infant mortality which brought Truby King

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to England in 1913.96

Pritchard, too, promoted breast feeding to confer immunity and extend the child's gastric education. Though, as a physician, he found artificial feeding 'easier to manage' because it was measurable, Pritchard maintained that the 'easier' might not be the 'better' method: cows' milk, 'designed by nature for the education of a calf, and for the purpose of teaching it to digest grass and hay', was 'hardly' the milk for a baby. He accepted that cows' milk should be modified to the standard of breast milk but rejected the use of whey as a 'counsel of perfection' too expensive and elaborate for the poor, and sought simpler ways of bottle feeding.97 Unlike Truby King, Pritchard advocated the simple boiling of milk because this destroyed bacteria, and had the added advantage of making the curd in cows' milk more digestible.98 Pritchard became famous for his invention of ways to simplify artificial feeding which impressed Australians and his New Zealand competitor.

Under Pritchard's regimen, as in Truby King's, the baby could not be trusted to decide its own feeding times because, 'never satisfied', it gave itself indigestion and precipitated a vicious circle of seeking more. The mother accordingly fed three-hourly from 6 a.m. with a long interval at night, to 'impress this habit of rhythm on the nerve cells in the brain', so that her baby would wake on cue.99 Habits, he proclaimed in a baby week pamphlet, represented 'man's essential nature'. In his textbook he asserted


97Pritchard, 'Some Practical Points in the Management of Breast-Feeding', Archives of Pediatrics, Mar 1913, p.164, Infant Education, pp.56-8, 60, 62, chap 4; Truby King, we may recall, prescribed whey in his No 1 recipe

98Pritchard, Infant Education, pp.78, 82, 85-6

that maternal instinct was 'erratic, irregular, and altogether untrustworthy.'\textsuperscript{100} He and his visitors instructed St Marylebone's mothers in infant management, a 'cheerful mental attitude', cleanliness and breast feeding in order that each would produce 'not only a fine fat baby', but a 'fine useful man'.\textsuperscript{101} His model, moulded in London's slums, 'full of life and animation and elasticity', was more fashionable than the sturdy New Zealand model of Truby King.\textsuperscript{102} The English doctor's differences with his colonial rival, Truby King believed, had their origin in this emphasis on ignorance engendered by his work among the poor.

There were two problems in St Marylebone, Truby King decided: Pritchard set his estimates of the food requirements of London slum babies too low, and ministered to the lower classes, who had no monopoly on bad mothering. The problems were related, for Pritchard based his calculations on what Truby King perceived to be the malnourished poor. In 1913 the English authority published measurements of the average amount of breast milk consumed by babies attending clinics in St Marylebone and Kensington, and at his outpatients' clinic at the Queen's Hospital for Children, which fell far below the accepted amounts of modified or humanised milk ordinarily given to the bottle fed. Pritchard was the author of the term 'test-feed', if not the method, whereby babies were weighed before and after a feed to determine how much they had drunk. He had to overcome mothers' superstition that to weigh a baby brought bad luck, as did the Alice Rawson School in Sydney, in using test feeds to measure the consumption of St Marylebone's offspring. Though he failed to disclose how he had done his sums, he used them to give substance to his decree that only by making test feeds routine could breast feeding be rational and

\textsuperscript{100}Pritchard, \textit{Character Training}, NA H1, 13/19, \textit{Infant Education}, p.viii
\textsuperscript{101}Pritchard, \textit{Infant Education}, p.64, also quoted in Davin, 'Imperialism and Motherhood', p.34
\textsuperscript{102}Pritchard, \textit{Infant Education}, p.68
scientific. The long-term implications of the test feed will be discussed in Part 3.

The immediate implications of his findings, that the accepted mean intake of breast fed babies was a theoretical standard and an over-estimate, fuelled contemporary anxieties about over feeding and diarrhoea. More pertinently for the New Zealander, Pritchard's standard, if accepted, would have ousted Truby King's golden mean, which tallied with the German figures that Pritchard dismissed as irrelevant for England's urban poor. According to Truby King, his was no mere antipodean mean, restrained by insularity and climate; he failed to comprehend how British authorities who had adopted the feeding tables of his mentors Rotch and Holt, so similar to the German, could assume that New Zealand's distance from Britain made any difference to babies' prescribed appetites. He knew that if his regimen were ever to be universally embraced, it was of 'paramount importance' to demonstrate that all babies conformed to the 'simple general law' of mammals; that these were enshrined in his infant feeding tables; and that this demanded winning converts in Great Britain.

For six months in 1913, Truby King and his wife Bella, armed with baby scales, applied Pritchard's method of the test feed in homes throughout his own territory of Bethnal Green and St Marylebone to prove him wrong. Characteristically, Truby King bettered his rival's method by weighing babies at home several times daily, in the hope of overturning his measurements as spurious estimates based not on actual observations, but on single test feedings made at the clinics. The criticism was justified, as the amount a

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103Truby King, A Plea for the Drawing Up, pp.2-3, 6; Pritchard, 'Some Practical Points in the Management of Breast-Feeding', Archives of Pediatrics, Mar 1913, pp.170, 172, 175; McCleary, The Maternity and Child Welfare Movement, pp.40-1; while Wickes reported that the test feeding method originated in Germany, 'A History of Infant Feeding', p.500, Pritchard declared in 'Harley Street Calling' that he derived the idea from Budin

104Truby King, A Plea for the Drawing Up, pp.5, 9-10; Mary Truby King also cited extracts from A Plea, in Truby King the Man, pp.216-7; Pritchard, 'Some Practical Points', Archives of Pediatrics, Mar 1913, pp.173-4
baby sucks varies in the course of the day; but his own method was not flawless. Eager to unearth an 'extraordinary discrepancy' between his and Pritchard's figures, Truby King admitted counting only those babies with appropriate weight gain. Reared in the slums, these babies 'averaged a small percentage below the generally accepted normal standard.' Whereas Truby King's slum babies consumed an average quantity of 31.5 ounces of milk daily by the fifth month, Pritchard's, measured over a number of years, drank half that amount, that is, 15.1 ounces daily. Truby King, whose standard for normal children of that age stood at 34 ounces, accepted that the babies of London's poor ate less than nature's law required, though not to the extreme asserted by Pritchard. In practice Truby King steered babies towards his mean by omitting babies who gained too much or too little weight and because he adjusted the feeding of breast fed babies by supplementing the mother's supply with the bottle. His conflict with Pritchard suggested that humanised, as opposed to human, milk embodied nature's standard.105

Both systematisers manipulated their method to produce the desired result. Truby King sought to have his New Zealand tables adopted internationally as the one universal, British, standard; his English foe, on the other hand, spurned feeding tables as 'worthless' if home conditions were overlooked. Slum infants drank less because of their low metabolism, stunted by lack of exercise and sun. Pritchard condemned the New Zealander's golden mean for inviting the over feeding of poor children, but qualified this concern by acknowledging that it was better for a baby to be fed too much than malnourished.106

Though the ideology and much of the rhetoric of the rival sages were

105 Truby King, A Plea, pp.7-8; Pritchard, 'Some Practical Points', pp.172-3; Mary Truby King, Truby King the Man, pp.214-6
similar, their skirmish revealed differences in their infant feeding practices. Sharpened by dispute, these diverged further with time in different countries. As Truby King's rules grew more rigid with age, Pritchard, no less authoritarian, strove harder for simplicity. The battle spread from Britain to Australia where, confronted by extremes of heat and distance, Pritchard's emphasis on environment assumed new dimensions in the minds of disciples bent on combatting Truby King's influence, and invoking Pritchard to advance their own cause at home.
CHAPTER 6
'THAT WELFARE WARFARE'
Truby King in Australia

The conflict came to a head in Australia, which Truby King's visits as a world authority helped make a battleground in the 1920s for the contradictions inherent in his ideas. It was Lady Munro Ferguson, the wife of the Governor-General, who invited him to Australia for the first time in 1919, on behalf of infant welfare organisations in New South Wales, Victoria and South Australia, and Western Australia. Lady Munro Ferguson was Lady Plunket's sister. In a private letter written before she left for Britain in 1920 she told Truby King that it was 'characteristic' of Australians to refuse to compromise on one scheme.

Truby King complained in Sydney in 1925 that Australians did not 'want to learn anything from New Zealand', but he was nonetheless widely influential. Having built his reputation on the principle that the country with the best infant mortality rate set the example for others to follow, and convinced that he and his faithful New Zealanders were responsible for their country's noble record, he grew more insistent that his regime should be adopted by others. Australians, irritated by his proselytising declaration that the Plunket Society was the 'one essential cause' of New Zealand's low infant mortality, invoked larger reasons for the differences between the infant death rates of the two countries. To reduce the Australian rate was a far more formidable task, the disaffected in Sydney retorted, yet infant mortality had halved in Australia without Truby King; the New Zealand rate had taken twice as long to fall the same distance, and had been declining.

1Lady Munro Ferguson to Truby King, 15 Apr 1919, 5 May 1919, 31 Jul 1919, PS AG7/127/923; chapter heading from DT, 8 Nov 1925, RSWMB, 11/2
2Lady Munro Ferguson to Truby King, 20 Jul 1920, PS AG7/128/931
3DT, 20 Oct 1925, RSWMB, 11/2
long before Truby King's rules came into vogue. The disparity between the Australian and New Zealand infant death rates, particularly from diarrhoea, resulted from the different climate, sizes of cities, numbers of people and flies in the two countries, and a shared 'high standard of living among the working classes', which also explained New Zealand's lower general death rate and lower birth rate. Where conditions differed it was natural to argue, as Dr W.G. Cuscaden, later President of the Victorian Baby Health Centres Association, declared in 1919, that what worked well in small New Zealand cities 'would not work in the big cities of the mainland like Melbourne.' This reasoning gained added force when health missionaries disagreed in their prescriptions.

The potential for dispute between Truby King and his competitors, strong because of inter-professional rivalries, was exaggerated by patriotism and personality and generational conflicts. Australian doctors had always been more flexible about infant feeding rules. Dr Helen Mayo's conviction in 1925, shared by Jefferis Turner, that babies did well on 'almost any food' was a retort to the New Zealander and his disciples. But Australians could not ignore Truby King, who captivated the press and above all, women. 'I wish he would go back to his little island and stay peacefully on his hill top ...', Dr Vera Scantlebury Brown, his counterpart as Director of Infant Welfare for the State of Victoria, lamented in 1929, just as the press welcomed the 'champion baby-saver' yet again to Sydney.

5W.G. Cuscaden, City of South Melbourne, Health Officer's Report, 1918-19, p.3
7Vera Scantlebury Brown, Diary B4, 12 Feb 1929, p.73, Melbourne University Archives, also cited by Kerreen Reiger, 'The Disenchantment of the Home', PhD thesis, La Trobe University, 1982, p.328; Sunday Times Pictorial, 17 Feb 1929; Guardian, 2 Jul 1929, RSWMB, 11/2
It could only be a matter of time, the faithful believed, before Truby King converted Australia. The Melbourne *Sun* splashed this headline after Truby King’s visit in 1923:

N.Z. Babies Survive  
But Many of Vic.’s New Natives Die Before One Year...  
If We Had The Plunket System Here  
Our Little Ones Would Live.8

His competitors had other ideas. Australians had to ‘work out [their] own salvation’, said Dr W.F. Litchfield in Sydney, even if, state by state, beginning with New South Wales, they did despatch doctors and nurses across the Tasman, to find what was wrong with the New Zealand system and if there was ‘anything more than a mere name in Truby King’. Australia had ‘more to teach than to learn’ from him.9

Some of the conflict in New South Wales in the 1920s and 1930s between Truby King and the Royal Society for the Welfare of Mothers and Babies, which was much influenced by the Plunket Society, has received notice from Lewis. Correspondingly, Reiger has illustrated some of the rivalry in Victoria between the Victorian Baby Health Centres Association and Truby King’s supporters in the Society for the Health of Women and Children of Victoria (Plunket System), founded in 1920. Both remark that Truby King’s visits to Sydney and Melbourne caused trouble; the latter draws on the conflict to portray the intensity of reforming efforts and the vehemence of the Plunket lobby.10 While these contributions are informative, the meaning of the dispute between the Truby King faithful and the dominant Australian groups has yet to be discussed. This chapter

8 *Sun*, nd (Nov 1923); J. W. Springthorpe, L. Levy and J. Hume Cook assumed Plunket would become the ‘accredited Australasian system’, circular letter, 14 Dec 1922, Footscray, H/6
10 Lewis, “Populate or Perish”, pp.151-9; Reiger, *Disenchantment of the Home*, pp.134-7, 144-5
explores what it was about. The 'missionary model' is offered further support by a portrayal of the baby health movement as a sectarian, proselytising movement of intense belief systems conveyed by charismatic figures. Some seeds fell on receptive ground among upright middle-class professional people, many of whom had their receptiveness deepened by imperialist and pronatalist beliefs. Other seeds withered among people of reforming habit of mind who preferred their own programmes. The factions fought each other and both claimed responsibility for the decline in infant mortality.

In 1919 Australia and New Zealand were still colonial, in different ways. Australia, with its numerous population of Irish descent, powerful trade unions and well organised Labor Party with a strong egalitarian, anti-authoritarian ethos, harboured rather more suspicion of imperial intentions. New Zealand, smaller, with a more homogeneous Anglo-Scottish population, was more bound to the imperium and less assertive, unless in the imperial interest. For Truby King to achieve prophetic status in New Zealand, he had to prove himself in England. In 1918-19 he returned to London, reportedly at the invitation of the British Government, to establish a mothercraft training centre (Karitane hospital) for the Babies of the Empire Society, and joined Pritchard and Newsholme on the executive of the National Baby Week Council. In April 1919, he appeared as an imperial figure, alongside Newsholme, at an international Red Cross meeting at Cannes, for which Emmett Holt arranged the programme. Truby King, then, arrived in Australia a celebrity, a 'world-famed specialist'.


12 Argus, 2 Dec 1919, p.7; also Sunday News, 30 Nov 1919, RSWMB, 11/1
The request to go to England and the New Zealand infant mortality rate earned his rules the seal 'tested and proved' among imperialists and some journalists in Australia, while the more conservative newspapers reported that the New Zealand infant death rate was 'entirely due' to his 'unique and almost ideal' scheme.\textsuperscript{13} 'When Great Britain wanted guidance,' his Australian disciples asserted, 'she sent for Truby King.'\textsuperscript{14} In fact Lady Plunket summoned him to England. She appealed that 'it would be just too heavenly to start a Karitane over here' after the success of the New Zealand exhibit at the first British baby week in 1917, and it was she who secured Truby King his position on the Baby Week Council.\textsuperscript{15} Her sister, Lady Munro Ferguson, invited him to Australia for a month on his way home from London.\textsuperscript{16} Truby King made at least ten trips to Australia between 1919 and 1931. Although some visits were fleeting and others prolonged, as in 1931 when he lived in Sydney with his daughter Mary, they always caused a stir.

His first Australian tour at the end of 1919 coincided with concern to rebuild the peoples depleted by war and lately ravaged by influenza. From Perth to Sydney, Truby King wielded the familiar slogan that the 'great wastage of manhood, womanhood, and also infant life caused by the war must be made good': it was 'lamentable' that babies were not always welcome. There had been a progressive decline in the past 40 to 50 years in physical efficiency, caused by the fall in the bearing and nurture of children. Australia wanted to be white, but if its people failed to 'do their duty to the

\textsuperscript{13}SMH, 29 Nov 1919, \textit{Sunday News}, 30 Nov 1919, RSWMB, 11/1; \textit{Argus}, 2 Dec 1919, p.7
\textsuperscript{14}J. Hume Cook to ed, \textit{Argus}, 4 May 1923
\textsuperscript{15}Lady Plunket to Truby King, 1917, King Family Papers, ATL MS 1004, F 4
\textsuperscript{16}Lady Munro Ferguson to Truby King, 15 Apr 1919, 5 May 1919, 31 Jul 1919, PS AG7/127/923.

The prophet's ventures demonstrated that he had devotees at the highest vice-regal levels; the sisters, Victoria and Helen, were daughters of the Marquess of Dufferin and Ava, a former Governor-General of Canada and Viceroy of India, and Lord in Waiting from the coronation of King George VI, in December 1936, to the new Queen Elizabeth. Lady Plunket was Queen Victoria's god-daughter.
race' then there could be no 'resistance to other races ... populating this fair
land.' People with means should set the example by having reasonably
sized families for the national good. 'Women should realise', he lectured
large audiences in Melbourne, 'that the proper care of their children was the
noblest work that they could do - the only work in which they were
immeasurably ahead of men.' Lowering the infant mortality rate was
women's work.17 On this tour, he invoked this ideal 'with all the
earnestness and enthusiasm of a missionary preaching a new gospel'.18

The Victorian Baby Health Centres and Royal Society for the Welfare of
Mothers and Babies publicly welcomed their state guest because of his
propaganda value.19 More importantly, the baby health centres needed
nurses, who were scarcely to be had during the influenza epidemic; and the
New Zealand Karitane hospital, reinforced by the Babies of the Empire
Society's mothercraft training centre in London, had an international
reputation. In 1919, there was no Australian equivalent of the New Zealand
courses for Plunket and Karitane nurses, in the sense that there was no
systematic infant welfare training and no uniformity. Instead the
metropolitan children's hospitals and foundling hospitals trained their own
nurses, the Foundling Hospital and Infants' Home in East Melbourne
offering a one-year course for 'young ladies' to train as children's nurses, not
unlike the Karitane scheme.20 It was the system and detail of the New
Zealand curriculum which appealed to politicians and reformers. In New
South Wales, Innes-Noad, the man of business, was keen to glean ideas for a
definite system from one in working order. The prophet invited

17 Argus, 2 Dec 1919, p.7; Brunswick & Coburg Leader, 5 Dec 1919; Una, 30 Dec 1919, p.310;
'Welfare of Infants. Great Expert's Visit', PS AG7/127/923
18 Argus, 2 Dec 1919, p.7, 5 Dec 1919, p.6; Una, 30 Dec 1919, p.310; SMH, 18 Dec 1919, 19 Dec
1919, RSWMB, 11/1; 'Welfare of Infants. Great Expert's Visit', PS AG7/127/923
19 See, for example, VBHCA, 1st Annual Report, 1918-19, p.7; Sunday News, 30 Nov 1919,
RSWMB, 11/1
20 Foundling Hospital and Infants' Home, Berry St, 36th Annual Report, 1912-13, p.7
Australians to send nurses to New Zealand, and doctors to observe the Plunket Society's patriotic health mission, whom he was sure would establish on their return infant welfare training schools that were a direct copy of his perfect scheme.\textsuperscript{21}

The doctors in the Royal Society for the Welfare of Mothers and Babies, privately, were derisive about the usefulness of the New Zealand model in Sydney. Litchfield and Clubbe protested: 'The methods employed in New Zealand are not suitable here.' Australians could not possibly 'slavishly follow him in every detail.' They were relieved when the Society chose Dr Margaret Harper as New South Wales's emissary to New Zealand in 1920, because they trusted their pupil to find what was wrong with the Plunket system and its founder, and not to be duped.\textsuperscript{22}

Harper's trip thwarted a rift, but only temporarily, in the infant welfare movement in New South Wales. Excited by Truby King's appeal to the well-to-do, she decided that something had to be done for this class of mother because some wrote to New Zealand for advice. Her answer was a Karitane hospital for Sydney, modified to address the dangers of diarrhoea by admitting babies only with their mothers, which she thought necessary because the problem of reducing infant mortality in New South Wales was 'much more difficult' than in New Zealand.\textsuperscript{23} The first Tresillian Mothercraft Home, which took its name from the house it occupied, opened in Petersham in 1921.\textsuperscript{24} Tresillian's object was to give Australians the same advantages as New Zealanders. It had Harper as medical director, a Truby

\begin{footnotes}
\item[21]Innes-Noad, RSWMB, General Council, \textit{Minutes}, 6 Jan 1920, 4/1
\item[22]Litchfield, Clubbe et al, RSWMB, General Council, \textit{Minutes}, Report B (unexpurgated), 6 Jan 1920, 18 Feb 1920, 4/1
\item[24]RSWMB, \textit{Tresillian Mothercraft Homes Jubilee}, pp.1, 8
\end{footnotes}
King matron, Elizabeth McMillan, and a Plunket signboard outside - though the Cornish name of Tresillian was intended to be Australian.25

The Victorian Baby Health Centres were equally eager to establish a training school: but on their terms. The Victorian picture differed from the one in New South Wales in that, as Truby King discovered, Melbourne since 1917 had been split into 'two conflicting and utterly irreconcilable camps'.26 This dispute failed to make a mark until the prophet himself appeared in December 1919 to open, with Bella Truby King and Lady Munro Ferguson, the first Truby King Centre in Victoria, in the mainly working-class suburb of Coburg.27 Considering that the centre was already outnumbered ten to one by the Baby Health Centres, and that the latter group had decided the previous July that it was 'useless' to negotiate in the face of 'so much antagonism',28 it is testimony to Truby King's ascendancy in imperial circles that Lady Munro Ferguson summoned the factions on an equal footing to Government House on 15 December, in the hope that the prophet himself might resolve differences. According to the Truby Kingites, both sides agreed to join in a new society with the New Zealand title, Society for the Health of Women and Children, to establish a training school and send nurses, beginning with Sister Peck, to New Zealand. But the Victorian Baby Health Centres had no intention of adopting the Plunket name or system. Mrs Henderson of the National Council of Women threatened to take her profits from the sale of old newspapers elsewhere if the Centres struck an accord with the Truby King faithful.29 The Victorians

25Sunday News, 4 Sep 1921; SMH, 8 Sep 1921; DT, 8 Sep 1921; Sunday Times, 11 Sep 1921, RSWMB, 11/1. The cane Plunket cots are still in evidence.
26Truby King to ed, Argus, 17 Feb 1923, Footscray, H/6, and St Kilda file
27The centre had been organised by the women of Coburg's Visiting Trained Nurses' Committee; see, for example, 'Visiting Trained Nurses', Una, 30 Oct 1919, p.244; Brunswick and Coburg Leader, 5 Dec 1919
28VBHCA, Minutes, Sub Committee, 25 Jul 1919; the VBHCA used Truby King's impending visit to postpone talk of merger, Minutes, Executive Council, 1 Aug 1919
29Lady Munro Ferguson to Mrs Truby King, 14 Jan 1920, Lady Munro Ferguson to Truby King, 20 Jul 1920, PS AG7/128/931; Brunswick & Coburg Leader, 2 Jan 1920, 16 Jul 1920; VBHCA,
established their training school under Sister Peck in November 1920 in the South Melbourne Town Hall.30

The Truby King-ites countered with their own Society for the Health of Women and Children of Victoria. Its president was Dr J.W. Springthorpe, a self-proclaimed eugenist, patriot and imperialist, vehemently anti-Catholic, who was a lecturer for many years at Melbourne University in dietetics and hygiene, producing a two-volume textbook, *Therapeutics, Dietetics and Hygiene*, in 1914, and had in the late nineteenth century written tracts for the Australian Health Society. Springthorpe's first wife had died in childbirth in 1897, and he built a shrine to Annie, the 'perfect mother', in the cemetery at Kew. The Victorian Truby King society was his second temple to motherhood, to which he turned to find his part in 'speeding on the race between Education and Catastrophe'”.31 The Society would not be helped by Springthorpe's grudging relationships with other members of his profession.32 If at first Truby King's visit seemed victorious and beneficial in its publicity to guest and hosts, in outcome it proved to be divisive.

Truby King's own performances in Australia show his movement and his opposition to have been intensely sectarian, embodied in charismatic leaders. The contradictions inherent in his ideas enabled disciples and rivals to preach slogans and practices to suit their own obsessions. An exasperated Dr Vera Scantlebury Brown, who tried in vain to amalgamate the sects in Melbourne, attributed 'Infant welfare troubles' the world over to those

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*Minutes, Special Meeting, 19 Dec 1919, Executive Council, 7 Apr 1920, 4 May 1920, 27 Aug 1920; SHWC of Vic, Report of the Provisional Council, Footscray, H/9*

30 'Better Babies. Coburg Truby King Centre', *Sunraysia Daily*, Mildura, newsclipping (nd), PS AG7/128/931; Vera Scantlebury Brown, Diary C, MO's Report for Nov 1920, and Diary D, draft history of VBHCA

31 J.W. Springthorpe, Diaries, esp. Diary 9, 11 Feb 1921, 30 Jun 1921, Diary 13, 3 Jul 1929, SLV MS 9898. On Springthorpe's memorial to his wife, see MS 1650, AMA library, Melbourne

32 These were the possible outcome of his misdemeanours as a medical student when he had stolen textbooks from the library before examinations. Information courtesy of Diana Dyason, whose evidence is papers at the Registry, University of Melbourne
'Dr. Truby King, of Maoriland, whose system of rearing babies has made him a world figure. He has just been telling Australia about it at the Health Congress in Melbourne.'

Source: Bulletin, nd (1923), Footscray, H/6
desiring 'notoriety' who 'rush into it because it is such a popular subject and such an easy way to make a name ...'. It attracted 'cheap natures' prepared to neglect the cause to gain a following.\textsuperscript{33} Truby King proved himself the archetypal charismatic figure by asserting that the differences between the sects were fundamental and irreconcilable.\textsuperscript{34} He wanted 'petty' differences 'sunk' between the rival societies in Sydney and Melbourne, yet drove deeper the 'gulf' that he had helped to create, by his dogmatic insistence on 'uniform, consistent, authoritative advice', that is, on Australia's conversion.\textsuperscript{35} 'Many people ... appear to have fallen under the glamour of his perfervid utterances,' complained the New South Wales Labor Minister of Public Health, George Cann, and 'accept them as the inspired gospel of the latter day prophet.'\textsuperscript{36} (The \textit{Bulletin}'s caricature is in Figure 12.)

As a leader who polarised opinions, Truby King wreaked the most damage, with the profoundest effect, during his fourth visit in 1925. On this occasion he was cantankerous, his rudeness not moderated by his arriving ill with influenza, without the temperate influence of his wife, or by his new knighthood. There was no good reason, he told the Millions Club and all who would hear him during Health Week, for the higher infant mortality rate in Australia. Babies' lives were being sacrificed, but it was 'utterly hopeless' to expect any fall in infant mortality under present methods. Victoria should stop looking askance at a successful system of rearing babies because it originated in New Zealand; and New South Wales should abolish the Royal Society for the Welfare of Mothers and Babies,

\textsuperscript{33}Scantlebury Brown, Diary B8, 8 Dec 1929, pp.21-2
\textsuperscript{34}Eg, Truby King to ed, \textit{Argus}, 17 Feb 1923, 'Essentials for Insuring Good Nutrition in Infancy as Bearing on the Prevention of Infantile Diarrhoea', TAMC, Supplement to \textit{MJA}, 12 Jul 1924, pp.481, 485
\textsuperscript{35}Argus, 20 Oct 1925, p.10, 21 Oct 1925, p.30; the latter item is taken from Truby King to Stanley Argyle, 17 Oct 1925, PS AG7/128/931; cf. Truby King, Mental Hospitals Department, Wellington, to Town Clerk, Footscray, 23 Nov 1925, Footscray, H/6, where he replaced 'consistent' by 'systematic'
\textsuperscript{36}DT, 27 Oct 1925; \textit{Herald}, 27 Oct 1925 (perfervid omitted), RSWMB, 11/2
whom he accused of hate, envy and uncharitableness. Australia's reception of his rules, so successful in New Zealand, had been 'cold and indifferent'. The world was recognising the economic value of healthy children but cows and pigs were better treated. New Zealand enjoyed no natural immunity to diarrhoea. To prove his point he contrasted the subsidence of infant diarrhoeal deaths in Dunedin with Hobart, the most similar of Australian cities in size and climate (Figure 13). It was this sort of propaganda that won over newspaper editors and saw the Sydney Sunday Times denounce unbelievers as "Herods and Hirelings."\(^{38}\)

He determined once and for all in 1925 to prove his regime's fidelity to the laws of nature by contrasting the effects of the rival systems. His strategy had changed little since his attempt to asperse Pritchard on his own domain. This time he hatched a scheme for an intensive summer campaign against infant diarrhoea among working-class babies in the Melbourne suburbs of Footscray and Coburg, which already had Truby King health centres. Such a campaign would, he believed, teach Australians a needed lesson. A precipitous fall in local infant death rates would embarrass the Victorian Baby Health Centres by contrasting with the high rates in the rest of Melbourne. Better, a repetition of Dunedin's success in wiping out deaths from infant diarrhoea 'would convince the whole world.' ('Conquer' was his first choice of verb, but he crossed this out.)\(^{39}\) This ambition stumbled on state rivalries. Truby King chose Sydney nurses who would throw themselves into the campaign "in the spirit of Florence Nightingale". His Melbourne faithful sent them back. This fiasco showed how the prophet, in

\(^{38}\)Sunday Times, 25 Oct 1925, 8 Nov 1925, RSWMB, 11/2
\(^{39}\)Truby King to Mayor of Footscray, 23 Nov 1925, Footscray, H/6
Figure 13  Infant Diarrhoea, Dunedin and Hobart

Source: Sunday Times, 25 Oct 1925
urging Australians to stop their bickering, upset his own ranks by his
impetuosity and enthusiastic disregard for official procedure.40

His nurses, especially those trained in New Zealand or London, proved
his keenest disciples. They found that his gospel gave them a platform
against the doctors. In particular, his Karitane or mothercraft nurses - the
educated English nanny and nursery maid metamorphosed - enhanced the
status of his Karitane hospitals by converting them into finishing schools for
the well-to-do. They often had businessman fathers, who saw mothercraft
as an efficient, safe, womanly career for their daughters and did not begrudge
the £20 fee. The ordered life of service, inculcating duty and economy into
the unregenerate, seems to have been peculiarly attractive to didactic,
missionary-minded middle-class people. His leading nurses in New South
Wales bore the hallmarks of the true believer. Sister Maude Primrose,
whom Dr Vera Scantlebury Brown would later describe as the 'primary
cause of disturbance' in infant welfare in Victoria for her role in
campaigning to convert the state to the Plunket system since 1917, had
Scottish immigrant parents and had trained as a Plunket nurse at the
Karitane hospital in Dunedin. She expounded until her death in the 1950s
Truby King's gospel 'For God and His Little Ones'.41 Florence Elizabeth
McMillan performed this role in New South Wales. She had trained with
her mentor in London, and in 1921 filled the coveted post of matron at
Dunedin. As the daughter of Sir William McMillan, Matron McMillan
belonged to Sydney's business and political élite.42 At the New South Wales
baby week in March 1920 she displayed the Truby King cot and baby scales,

40The fiasco is documented in Footscray, H/6; also J.W. Springthorpe, SLV MS 9898, Diary 10,
19 Nov 1925, 20 Nov 1925, 21 Nov 1925
41Scantlebury Brown, Diary B 9, 8 Feb 1930, p.87; motto from Truby King League of Victoria,
Annual Report, 1935-6, p.2; on Primrose's writings, see Reiger, Disenchantment of the Home,
pp.136, 139, 142
42ODT, Dunedin, 17 Oct 1921; Evening News, Sydney, 14 Sep 1921, RSWMB, 11/1; Truth (nd, 1925); DT, 10 Nov 1929, RSWMB, 11/2; Gibbney and Smith, A Biographical Register, vol 2, p.67
before presenting 'the cot', 'well sunned and scalded', to the baby of another nurse devotee.43

Many Australian converts had business backgrounds. Of the loyal wives of men in business and the professions, Mrs Ethel Allen, of Sydney's Scottish Lamb family, the wife of a partner in the established law firm of Allen, Allen and Helmsley, was the most influential. She helped Elizabeth McMillan to open a Sydney Karitane hospital at Coogee in 1924, and her gift of £5000 allowed McMillan to relocate Karitane-Sydney in a refurbished mansion in Woollahra in 1927. A Melburnian woollen merchant, Joseph Tweddle, made it possible, by another donation of £5000, for Springthorpe and Primrose to open their hospital in Melbourne. The Tweddle Hospital for Babies, designed with New Zealand-style rambling wooden buildings as an imitation of the Dunedin hospital's donated premises, opened in Footscray in 1924.44 These replica Karitane hospitals gave the minority Truby King societies in Sydney and Melbourne influence in the 1920s and 1930s out of all proportion to their size. Both the Society for the Health of Women and Children of Victoria (Plunket System) and the Australian Mothercraft Society (Plunket System) - whose title testified to their ambition - established by Matron McMillan in Sydney in May 1923, centred on their mothercraft training schools.

Expatriate New Zealanders who saw themselves as patriot missionaries swelled the numbers of the faithful. Mrs Pattilini Wilson and Mrs W.A. Leitch are representative examples: married to Melbourne bank managers and raised in New Zealand, they led the Truby King League of Victoria in the 1930s.45 This was another Primrose enterprise, launched by Truby King on his final visit to Melbourne in 1931. At its core were a group of women

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43Elizabeth McMillan to Mrs Truby King, 10 Apr 1920, PS AG7/128/931
44SHWC of Vic, Annual Reports; AMS, Annual Reports; SMH, 10 Oct 1929; for biographical details about Ethel Allen, see Gibbney and Smith, A Biographical Register, vol 1, p.11
45Who's Who in the World of Women, vol 2, 1934
'anxious to carry out Truby King methods in their entirety' and who were willing to pay a Plunket nurse for home visits. The sacrificial gesture of Sister G. Johnston, who worked for her first year without pay, was not enough to save the visiting scheme from the Depression; instead the League set up shop in a department store, Buckley and Nunn's, and opened a centre for mothers who wanted their babies raised on Truby King lines, with a subsidy of £1200 a year from the Karitane Products Society in New Zealand. In 1934 Primrose established a last memorial to her mentor, the Truby King Mothercraft League of South Australia, in Adelaide.

Warfare between the Truby King-ites and the dominant Australian groups in Victoria and New South Wales really erupted in 1923. Ever since the first baby health centre had opened in Victoria, in 1917, successive Liberal and National governments had striven to unite the hostile forces, fearful that their rivalry might jeopardise the drive to lower infant mortality by confusing mothers. Always, in the middle, were the relative claims over feeding methods. In 1923 negotiations broke down altogether. Frustrated that its attempts to merge the groups in one new society had been defeated, and to establish a board that would oversee and decide the policy of both organisations, the state government intervened and halted the state subsidy to new centres, which was by then £125 for each nurse. Lady Forster, Lady Munro Ferguson's successor at Government House, withdrew her patronage from both Truby King-ites and Baby Health Centres, to no avail. The row effectively cut by half the movement's funds in 1923-4. Some planned centres did not open, although others went ahead in the city in the

46Truby King League of Victoria, Annual Reports, 1935-48 (quotation from 1935-6, p.4); Herald, 9 May 1931, in Springthorpe, Diary 14
47Truby King Mothercraft League of SA, Minutes of Meetings, 1934-45, Mortlock Library SRG 9
48J. Romanis, Town Clerk, Prahran, to Municipal Clerks, circular, 15 May 1923, St Kilda file
49See, for example, VBHCA, Executive Council, Minutes, Box 3 Book 1; Town Clerk, Bendigo, to Hon Sec Infant Welfare Conference, Town Hall Melbourne, 22 Feb 1924, Bendigo Box 1; City of Fitzroy, Minute Books, 25 Feb 1924, PRO 4544/12
middle-class suburbs of Heidelberg and Prahran, and at Mildura, Stawell and Ararat in the country. Truby King devotees, it seemed, met everywhere with "not wanted". Yet the Nationalist Government was prepared to settle the dispute on terms which would have favoured the Truby King society, by giving both sides equal representation when the Victorian Baby Health Centres totalled 50 in 1923 and the Truby King centres numbered four. The government's terms were unacceptable, not least because they demanded that the movement shed its sectarianism. The government's own bias to the Truby King faithful issued from Dr Stanley Argyle, the Chief Secretary and Minister of Public Health, who had been to New Zealand and was sufficiently impressed by the work of the Plunket Society to give the Victorian equivalent its best chance of survival.

That the row was most heated over artificial feeding was for some no mere ploy in a political game. The Victorian Baby Health Centres and Royal Society for the Welfare of Mothers and Babies were more relaxed about feeding rules, even in an era when they grew more precise. Even today they are more easygoing about them than the Plunket Society's former allies in Australia. Part of the row centred on the prophet's emulsion. Forever perfecting his method, Truby King copied Pritchard's Marylebone Cream after the war in concocting an emulsion of fats and oils to replace top milk in his recipes. In 1922 he thought he had it right with a mixture of cod liver oil, butter, dripping, olive and peanut oil, and could not wait to show Australia, and England, his answer to safe bottle feeding. He exported to Sydney and Melbourne tins of his New Zealand emulsion, or Plunket cream. Although the emulsion kept well, which made bottle feeding safer, it astounded Australians by its content. As Queensland's Director of Infant

50 Springthorpe, Diary 10, 19 Feb 1923, 24 Nov 1924, 18 Dec 1924
51 VBHCA, Executive Council, Minutes, 10 Apr 1923, 24 Apr 1923; Argus, 30 Sep 1924, p.11; correspondence in Bendigo, Box 1, Baby Health Centre, 1920-40
52 Scantlebury Brown, Diary E, Visit to New Zealand and America, 14 Jan 1924, pp.2-3
Welfare, Dr Alfred Jefferis Turner, quipped, 'to call anything "humanised milk" which has been modified by the addition of ... peanut oil, is surely a strange use of language.'\(^{53}\) Innes-Noad in Sydney was even less polite: 'The woes of Sir Truby King are like those of the anti-Fascisti in Italy,' he retorted in 1925, 'mainly due to oil, not castor oil in this case but cod-liver, with a liberal addition of peanut and cotton-seed.'\(^{54}\) This seemingly inconsequential detail illustrated the extremes attained by sectarian controversy. The emulsion, although it was only partly responsible for beginning the rift in the baby health movement, certainly helped to perpetuate it in New South Wales. A newly knighted Sir Truby King astonished Sydney in 1925 when he asserted that he had sent a shipment to the order of the New South Wales Government in 1922, of which the Royal Society had refused to take delivery. The consignment, described as 'large', in fact was unsolicited; and amounted to but one case of emulsion. The Sydney Society promptly sent it back because the New Zealand emulsion attracted a Customs duty of 40 per cent, which inflated its cost to double that of the local product.\(^{55}\) This posed a quandary for Elizabeth McMillan. At Tresillian, contrary to Harper's instructions, she fed babies to Truby King's recipes. Deprived of her essential ingredient, Matron McMillan, determined to prepare humanised milk to the prophet's decree, was caught surreptitiously bottling New Zealand emulsion and dismissed for this, among other insubordinate acts.\(^{56}\) Amid public outcry she departed, the

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\(^{53}\) Jefferis Turner, 'Infant Feeding', *MJA*, 12 Jun 1926, p.670, RCH, Evidence, 18 Jun 1925, q.18796


\(^{55}\) *DT*, 25 Oct 1925; *SMH*, 23 Oct 1925, RSWMB, 11/2. Also Innes-Noad to Truby King, 18 May 1922, PS AG7/128/931; *RSWMB*, Minutes, 8 Jun 1922, 12 Jul 1922, 4/1

\(^{56}\) RSWMB, Minutes, 17 Oct 1922, 10 Jan 1923, 24 Jan 1923, 14 Feb 1923, 27 Feb 1923, 4/1; *Evening News*, 19 Feb 1923; *SMH*, 23 Feb 1923; *Sun*, 23 Feb 1923; *DT*, 24 Feb 1923, RSWMB, 11/1
Governor's wife in tow, to launch her own Australian Mothercraft Society (Plunket System), a 'misnomer' to her rivals, to spread the true faith 'throughout the Commonwealth'.

DIFFERENCES

The dispute raised bigger issues. The sects divided over artificial feeding rules and the strictness of the Truby King-ites about percentage feeding, or humanised milk. In Sydney and in Melbourne the Victorian Baby Health Centres and Royal Society for the Welfare of Mothers and Babies were the advance guard of loyalty to Pritchard, although in practice both Tresillian and the Victorians' infant welfare training school started out by using Truby King's Feeding and Care of Baby as a textbook. According to these dominant mothercraft organisations, 'humanising' milk by reducing the protein percentage to the average level in mothers' milk did not suit Australians nor the Australian climate. The debate was fiercest over protein. The protein row had a long and tangled history which was punctuated by Truby King's visits. While he led the 'low' protein or humanising school, the 'high' protein faction, for whom Pritchard was mentor, was headed by Melbourne's paediatricians, among them Dr Alfred Derham and Dr Kate Campbell, who held the post of medical officer to the Victorian Baby Health Centres for 40 years. In their view Truby King became more 'violent' over high and low protein as he grew older, more tremulous and more dogmatically outspoken. Jefferis Turner

57 McMillan to Town Clerk, Footscray, 19 Nov 1925, Footscray, H/6; 'The Karitane-Sydney Mothercraft Training Centre', DT, Woman's Supplement, 25 Feb 1926; Labour Daily, 16 Jul 1927, RSWMB, 11/2. Dame Margaret Davidson was a lifelong friend of Lady Plunket; 'Training School for Infant Welfare. First Under Karitane System in Australia', Sunday Times, 11 Sep 1921, RSWMB, 11/1

58 Scantlebury Brown, Diary C, Report Book, Medical Officer, VBHCA; Henrietta Main cited by Springthorpe, Diary 10, 28 Oct 1925

59 A.P. Derham, Lecture to Vic Branch, BMA, 19 Jun 1930, A.P. Derham Papers, 5/2/2, Melbourne University Archives; Patricia Grimshaw, 'Kate Campbell', in Radi (ed), Australian Women, p.208

60 Scantlebury Brown, Diary B6, 25 Jul 1929, p.29. Dr M. Tweed, medical adviser to the NZ Plunket Society, subsequently objected to the use of the term 'low protein' to describe the
strengthened their judgment. On a visit to New Zealand in 1927 he broke to Truby King the results of experiments at Sydney University which showed how the percentages of protein in breast milk varied, which suggested that 'the theoretical basis of the percentage feeding insisted on in New Zealand had no real existence.' Sir Truby's 'reception of these analyses', he noted, 'was characteristic. He refused to believe them. He could not believe that Nature was so careless.'

The New Zealander's Spencerian argument never faltered; nature adjusted the proportion of protein to the rate of growth of the progeny of a species. It was 'scarcely ... accidental' that cows' milk contained nearly three times as much protein as human milk and that a calf grew three times as fast as a baby: excessive protein overtaxed the digestive organs, poisoning a child, stunting its growth, and causing diarrhoea and 'obstinate constipation'. His outbursts over protein became legendary. On bad days he would roar: 'God put 1.4 per cent protein into breast milk, and I tell you that anyone who gives a baby more than 1.4 per cent protein is blaspheming God Almighty'. Recalling one occasion when he 'held forth for nearly two hours', Scantlebury Brown retorted: 'he could do things his way if he liked and slash and bang ... but ... I would do things my way'.

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human or Truby King standards of milk'; he suggested 'normal protein', SHWC of Vic, Annual Report, 1936-7, pp.6-7


62Truby King, 'Physiological Economy in the Nutrition of Infants', NZMJ, vol 6, no 24, Nov 1907, pp.75-7, 86; 'The Application of Science ... to Artificial Feeding during Infancy', NZMJ, vol 20, no 95, Feb 1921, pp.34, 45-8; Components of Various Milks; Feeding and Care, 1917, p.111. At the Australasian Medical Congress in Melbourne in 1923, he insisted: 'It is against all the probabilities to suppose that Nature's average proportion of protein in human milk is not the optimum for the average baby.' Truby King, 'The Establishment of Breast Feeding', TAMC, Suppl. to MJA, 5 Apr 1924, p.188

63Kate Campbell, Session 1, Jubilee Conference on Maternal and Child Health, Apr 1976; Wendy Kapper, Interview with Dame Kate Campbell, nd (1976), Scantlebury Brown Papers. Reiger has cited another description of this incident, in Disenchantment of the Home, p.145

64Scantlebury Brown, Diary B6, 25 Jul 1929, p.29
The row illuminates differences in Australian and New Zealand climates and babies' physical responses to summer heat. Truby King's competitors asserted that since the percentages in humanised milk had to be balanced to meet a child's caloric requirements, 'low protein' meant 'high fat'. In hot weather Australian children succumbed to digestive upset if given the rich New Zealand diet. One cross, sleepless and underweight baby, fed to Truby King's recipes and vomiting between meals, a Melbourne general practitioner decided was 'having too much fat'. He prescribed the forbidden Nestle's milk, with fatless broth. The answer for Australians who disliked fat was dried milk, patent foods, which were expensive, simple milk, water and sugar mixtures, or lactic acid milk, fashionable in the United States, which were anathema to Truby King because of their high protein content. Dr Helen Mayo in Adelaide favoured the simplest method; a half milk, half water mixture, for example, contained a protein level of about two per cent. She did not believe that high protein caused kidney disease and preferred to give babies concentrated food because she thought that under feeding was more of a problem than over feeding. It was a row with little secure experimental work to draw on. If some Australian doctors chose low protein, their small charges developed fat intolerance; if other doctors ordered strong high proteinfeedings, constipation ensued. Most doctors in Australia settled for high protein by the late 1920s with the ritual it demanded, on the pot, and its lesser risks of under feeding. The bottle fed baby, they asserted, needed more protein than the breast fed baby to obtain the portion of amino acids found in mothers' milk, in which the curd of cows' milk was deficient.

65V.H. Wallace, Patient History Cards, 17/1
66Helen Mayo, Broadcast for BMA, Apr 1932, Emma Pooler Lecture no 1, Sep 1934, Mortlock Library SRG 199/16. Mayo explained the difference between the schools in terms of the disagreement over protein, in News, Adelaide, 4 Jul 1935, SRG 199/16
67F.N. Le Messurier, 'Modern Aspect [sic] of Artificial Infant Feeding', MJA, 21 Nov 1925, pp.603-7; Scantlebury Brown, 'Experiences Abroad, With Special Reference to Infant
The protein row exemplifies changing patterns in medical orthodoxy. The central point was an extrapolation from the fall in the infant death rate. As fewer babies died from diarrhoea, deaths once attributed to over feeding were now attributed to under feeding or malnutrition. The Australian solution was high protein. The row had an important outcome, by affecting the feeding of children in the Depression. The protein debate itself was an outcome of the fall in infant mortality, and showed how doctors belatedly acknowledged that the problem had changed. In the 1920s prematurity replaced diarrhoea as the major killer. Australians responded with high protein to spur the growth and resistive powers of premature babies. As more babies survived infancy, medical anxieties and infant welfare expanded also to cover the pre-school child, who needed protein for growth, yet risked undernourishment; in the Depression high protein seemed safer.68

Modifying cows' milk with raw sugar provoked similar outbursts. Truby King opposed cane sugar because he believed that it set up fermentation in the bowel, causing diarrhoea; he condemned the 'dark brown, sticky impure [raw] Demerara sugar' and said he would like to 'know its bacterial content'.69 Australians did not share his qualms. Though many preferred milk sugar as the natural sugar for babies, they prescribed cane sugar because it was cheap and easy to add from the sugar bowl. It did not

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69Plunket Society deputation to [NZ] Prime Minister, 13 Sep 1928, NA H1, 127/54/4, p.3
seem to matter whether lactose, cane sugar, or malt sugar was given as babies did just as well.70

The protein-fat-sugar argument is complicated. Bottle feeding a baby had always been easier in temperate, sea-breezy New Zealand than in Australia, where heat, often compounded by distance, rendered liquid cows' milk a serious threat to children's health. Impure milk was a dangerous ingredient in any recipe. At the height of an Australian summer, pure, fresh milk was rarely to be had and when available it was difficult to keep clean and cool. Since the milk arrived at the house already stale, infant health leaders such as Jeffreys Wood, Jefferis Turner, Harper and Mayo had earlier abandoned as foolhardy the top milk method popularised by Truby King where the mother left the milk to stand, or set, for no more than five hours in warm weather.71 Without an ice chest germs multiplied dangerously on a hot summer's day. One doctor had treated four babies for diarrhoea in one morning as a result of mothers trying to humanise milk.72

In New Zealand milk went 'sour', only to be used in cakes; in Melbourne it went 'bad', Stella Allan, ('Vesta', of the *Argus*) told her readers. In 1923 she no longer described Truby King as the ultimate authority on infant welfare, though she professed still to admire his patriotism and skills as a propagandist. Blaming the effect of heat on milk for her own baby's bout of diarrhoea in her first months in Melbourne, she advised women to 'consult our own baby doctors'. Thirty years' residence in New Zealand had taught her that Truby King worked in 'much easier conditions', especially in cold


71On the dangers of setting milk see RCH, Evidence of A. Jeffreys Wood, 10 Feb 1925, q.2097, Helen Mayo, 14 May 1925, q.13650; Jefferis Turner, 'Infant Feeding', p.670. Harper would not recommend the New Zealand regimen in New South Wales because it was safe only when 'good fresh milk' was obtainable and could be kept 'clean and cool', Harper, *The Parents' Book*, p.45

72RCH, Evidence of A. Jeffreys Wood, 10 Feb 1925, q.2097
Dunedin. The Australian view that temperature and rainfall explained Dunedin's advantage over Melbourne is summarised in Figure 14. This shows that in Victoria in 1915-24 infant diarrhoeal mortality still displayed its seasonal pattern, and was inversely related to rainfall.

The conflict illumines the haphazard state of the milk supply, which if it improved slowly as sanitation improved, continued to present dangers for babies in dirty dairies and faulty distribution, and in inducing mothers and doctors to avoid liquid milk, especially in summer. The milk supply of Sydney, Melbourne and Brisbane remained contaminated, to the extent that nurses and doctors at the New South Wales and Victorian baby health centres advised mothers not to use cows' milk in hot weather and often to use Glaxo and Lactogen instead. Whatever the chosen alternative, they believed that humanised milk, made by the top milk method, increased rather than reduced the dangers of infant diarrhoea. 'Milk may stand in New Zealand, where the supply is obtained close to the town,' Dr A. Jeffreys Wood, former president of the Victorian Baby Health Centres, asserted in 1925, 'but not here, when it has come from Gippsland.' His short-lived successor, Dr W. Kent Hughes, who resigned during the warfare of 1923, was scandalised by the smell of emptied milk cans at the railway station. One-fifth of Melbourne's milk in the 1920s was of grade A quality, an improvement over 1900, but still milk transported even from Dandenong, one hour from the city, arrived up to ten or fifteen degrees warmer than the daily temperature. I have yet to learn that New Zealand's milk supply was superior.76

73 Vesta', Argus, 9 May 1923
74 Truby King, 'Infant-Welfare Work in Australia', Footscray, H/6
75 C.P.B. Clu"bbe prescribed Glaxo and Lactogen, RCH, Evidence of Clu"bbe, 10 Mar 1925, q.6356
76 RCH, Evidence of Jeffreys Wood, 10 Feb 1925, q.2097, W. Kent Hughes, 11 Feb 1925, q.2233-4. In Auckland city by 1923, the Plunket nurse had herself given up standing milk because she thought it inadvisable in some houses on hot days. Scantlebury Brown, Diary E, p.1
Figure 14  Infant Mortality and Climate
Victoria and New Zealand, 1915-1924

Average Annual Curve 1915-1924
Victorian Infant Mortality under 2 years
from Diarrhoeal Disease Resolved into
Annual and Bi-annual Components

Victorian Annual and Bi-annual Components
of Average Infant Mortality compared with
Mean Maximum Temperature and Rainfall at Melbourne

(1) Annual Component of Deaths
(3) Bi-annual Component of Deaths
(4) Bi-annual Component of Rainfall
(5) Annual Component of Rainfall

Note inverse correlation of (3) and (4)
Figure 14 (continued)

Graphs Showing the More Favourable Conditions at Dunedin N.Z.
Compared with Melbourne

Degrees F

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MEAN MAXIMUM TEMPERATURE

Inches

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RAINFALL

Deaths

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<tr>
<td>J</td>
<td>Infant</td>
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<td>F</td>
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Victorian aggregates. Infant Deaths 1919-1923
New Zealand Deaths Under 5 Years 1923

Source: Main and Scantlebury, Report to the Minister of Public Health
The dispute also reveals that not everybody thought pasteurisation was a good thing. On the one hand, Truby King’s Victorian rivals opposed pasteurised milk for reasons explained in Chapter 4. They supplied raw Talbot milk, packed in ice, for babies and advised mothers otherwise to boil milk. His supporters, Mrs M.J. Ward and Sister Tucker of the Truby King centres at Coburg and Footscray, on the other hand, used milk from the local dairy, which they taught mothers to pasteurise at home to the Plunket prescription because they found the cost of pasteurised Willsmere milk, of 5d a pint, too expensive. Home pasteurisation was, as we have seen, no easy matter, and introduced the risks of heating milk at too low a temperature or of treating as safe milk that was already old.

There would have been no debate had the dairy lobby not blocked pasteurisation, and opted instead for an expensive tuberculin tested system which ensured that the milk supply continued to endanger health. Not until the 1950s did Melbourne have compulsorily pasteurised milk, or Sydney require milk to be sold in bottles or cartons. Only in the 1950s, too, did refrigerators enter Australian homes in large numbers. Truby King’s opinions about milk merely emphasise that the milk supply played little part in the infant mortality decline: a clean milk supply postdated the major fall by half a century.

The dispute revealed that Australians were more preoccupied with the practicalities of working-class domestic arrangements. The Australians insisted that the baby’s milk was unsafe unless boiled not merely because the

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77 A. Jeffreys Wood, 'The Care of Milk in the Home', Health, Apr 1923, pp.105-8; pamphlet, 'Talbot Milk', J.W. Barrett Papers, Melbourne University Archives. On boiling milk see, for example, Scantlebury Brown, A Guide to Infant Feeding, 1929 ed, p.18; A.P. Derham, 'Lectures to Nurses on Infant Feeding', no 6, Milk Modifications, Children’s Hospital, Carlton, 1931, A.P. Derham Papers, 5/2/1
78 M.J. Ward to ed, Age, 3 Dec 1920, PS AG7/128/931; Tucker to Gent, Town Clerk, Footscray, 16 Nov 1922, Footscray, H/9
milk supply was bad, but because boiling, as the simplest method of destroying germs and softening the curd in cows' milk, was the safest for the working classes. Though this destroyed some vitamin C, they preferred that the mother boil milk than expose her baby to the dangers of pasteurisation not properly done. Only wealthy suburbs had ice chests. Truby King's Victorian faithful found that Coburg and Footscray mothers had to rely on a bran box, or a home-made cooler cut from a kerosene tin to protect their babies' food. Moreover the New Zealand fly population could not compare with the fly menace in Australia, to which the poor baby was exposed until working-class homes acquired fly screens in the 1930s. In Australia, the warfare confirmed that Truby King's methods were the most practicable for comfortably off people, whose babies were better protected in every detail of their existence from gut infections.

DIFFERENCES MAGNIFIED

It remains for us to interpret these differences of regimen, given that the rival rules were interchangeable in many ways. Donald Horne, who grew up to write The Lucky Country, had read the standard literature on mothercraft as a boy, in preparation for the arrival of his baby sister. 'It was essential', he wrote in his autobiography, 'that this new human appliance we were about to acquire should be breast-fed rather than bottle-fed, because statistics showed that nine out of ten babies who died in the summer were bottle-fed babies. Otherwise we must discipline it. It must be left to cry when it cried; it must do everything by the clock - eat, wash, sleep, play; it must not be rocked; it must be toilet-trained very early. If these rules were not carried out the apparatus might be seriously impaired. I was not sure if Mum was intelligent enough to have a baby.' Then again, young Donald

80 WARD TO ED, Age, 3 Dec 1920, PS AG7/128/931. On flies see RSWMB, Annual Report, 1924-5, p.16; Main and Scantlebury, Report to the Minister of Public Health on the Welfare of Women and Children, p.8; and fly screens, McCalman, Struggletown, p.50
came from a Scottish family and as such he could be said to fit the stereotype of the person more likely to be attracted by clockwork rules. Certainly Australians of all followings advocated breast feeding, three or four-hourly. All schools instructed mothers in methods of safe artificial feeding, if for some reason they could not or were told should not wholly breast feed. Timetabled routines were generally embraced in the 1920s and 1930s, according to the rationale that the clock helped the baby's digestion and thus to prevent diarrhoea. They also gave the mother more time to cook and clean. The prescribed health rules were universal and invariable; fresh air, sunlight and exercise for mother and baby, plain food, sensible dress and cold baths for the mother, a separate basket cot for the baby, holding out the baby over a pot, no dummy, and an enduring emphasis on regularity of habits. 'Punctuality and regularity', Sister Muriel Peck wrote in her manual Your Baby, published in 1925, variously quoting Pritchard, 'are the secrets of success in baby's care'.

These divergences may offer insight (though the matter requires closer attention than I can give it here) into subtle but significant differences between Australians and New Zealanders. More than semantics distinguished Truby King's dogmatism from the relative easygoingness of Australians. This distinction informed and magnified the central dispute over artificial feeding. Australians could not agree on one scheme because even when the rules themselves were generally particular, they opposed 'over scientific fussiness which insists on measuring and sterilising everything.' They contemplated the simplest method of safe bottle feeding, and often as not settled in practice on the traditional half and half mixture of boiled milk and boiled water, sweetened first from the family sugar bowl. This method was also high in protein; but as Anne Purcell, the

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82Peck, Your Baby, p.23. See also advertisement, Reiger, Disenchantment of the Home, p.151
83A.P. Derham, 'Lectures to Nurses on Infant Feeding', 1931, Lecture 2, p.3, 5/2/1
matron of the new Victorian Baby Health Centres training school, explained in 1928, to halve the protein in cows' milk to 1.7 per cent by adding an equal quantity of water was 'about right'.

In a more colloquial phrase (not unknown in New Zealand but more pervasive in Australia), 'she'll be right', or to quote another often taken to be quintessentially Australian, 'near enough is good enough'.

Truby King and his disciples denounced the Australians for their 'tendency to slackness' which high protein feedings supposedly exemplified. This battle became newsworthy in 1925 when the New Zealander magnified the reservations of Sydney's infant health leaders into a violation of science and system, to bring their competence into poor repute; he condemned as 'INIQUITOUS' the baby clinics' pamphlet, Notes for Mothers, for its 'momentous' suppression of a column in a feeding table which he alleged should have prescribed amounts of humanised milk. That Mrs W. Hazlett of the Country Women's Association believed him demonstrated the force of his charisma: 'He shewed me two tables of baby feeding', she explained in open disloyalty to Sydney's Royal Society, 'and he said that the difference between yours and his was the cause of the loss of children to us, and not climatic conditions and city congestion.' Embarrassed, the Society withdrew the booklet. But the supposed omission was deliberate. Sydney's baby clinics rejected elaborate recipes for humanised milk and had since 1914 advocated the simpler part milk, part water mixtures condemned by Truby King as 'slipshod'.

Just as Truby King urged the importance of hard and fast rules, his Australian opponents spurned such rules, defending the baby as an

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84 Anne Purcell made her remark in Purcell, The Australian Baby, Melbourne, 1928, pp.80-1
85 K.S. Inglis kindly advised on colloquialisms. See OED Supplement
86 RSWMB, General Council, Special Meeting, Minutes, 5 Nov 1925; DT, 25 Oct 1925; Guardian, 28 Oct 1925; Truth, 8 Nov 1925, RSWMB, 11/2
87 Department of Public Health, NSW, Notes for Mothers, Sydney, 1916, pp.13-15, 5/5330.2, AONSW; Truby King dismissed the 'old slipshod way of infant feeding' in Argus, 17 Feb 1923
individual, and 'not a machine with standardized parts' or a recruit to be drilled in barrack obedience. The Australians allowed for mother love, and permitted a mother to pick up the baby when it was upset; the baby might be left to cry, but it was picked up before it lapsed into nervous exhaustion. During toilet training, its bowels were not made but assisted to move by the power of suggestion through massage, and night feeds might be accepted as sometimes necessary in the baby's first weeks of life.88 Truby King's opposition saw themselves as less rigid, as more sympathetic to the needs of the individual baby and of the mother in the house.89 In short, they adapted the dogma of the period to Australian conditions: not on their small charges would they inflict the New Zealand patent methods, cryptic or esoteric secrets, nor attempts to circumscribe the training of babies, mothers and nurses within the limits of a "system".90

These views found a terse expositor in Dr E. Sydney Morris, Truby King's counterpart from 1926 as the first Director of Maternal and Baby Welfare in New South Wales. Morris, born in 1888 in Marrickville, was 30 years Truby King's junior. He had been Director of Public Health in Tasmania before he moved to New South Wales in 1924, and in this capacity had visited New Zealand. Having done so once, he had seen quite enough and refused to visit again on behalf of New South Wales, to quell the furore in the press stirred by Truby King's perorations. He never forgave Truby King for criticising the infant welfare movement in New South Wales and for his promotion of the Plunket system 'as the only method which could

88 Examples include the source of the quotation, Selwyn Harrison, 'The Digestive Disorders of Artificially-Fed Infants', MJA, 6 Dec 1919, p.479; RCH, Evidence of Jefferis Turner, 18 Jun 1925, q.18791; Harper, The Parents' Book, p.69; RSWMB, Annual Report, 1924-5, p.15; DT, 21 Oct 1925, 7 Nov 1925; Truth, 8 Nov 1925, RSWMB, 11/2; Peck, Your Baby, pp.33, 37, 51
89 Dr A. Elizabeth Wilmot, former Director of Maternal, Infant, and Pre-School Welfare, interview, Melbourne, 5 Sep 1985
90 E. S. Morris, Director of Maternal and Baby Welfare, NSW, to J.H.L. Cumpston, Federal Director-General of Health, 6 Nov 1931, AA, CRS A1928, Item 155/1 sect 1
bring salvation to the State...'.  

Morris’s hostility was important because he rose from this position to be Director-General of Public Health from 1934 to 1952, and so guided the New South Wales Health Department for a quarter century.  

Truby King-ites, he alleged from the moment he was appointed Director of Maternal and Baby Welfare, 'aggrandised principles and methods almost into a religion.' The average Plunket nurse of his experience was so rigid and dogmatic about infant feeding that she regarded Truby King’s rules as a ritual, in which the 'slightest deviation [became] magnified ... into almost a heinous offence.' Australian nurses' minds were not stereotyped in one pattern; Australians did not seek salvation in one scheme, but relied on variety bred of common sense and rational thought. He refused to believe that the patronage of royalty stood as evidence of the Plunket Society’s special worth. Morris repeatedly ridiculed such sweeping imperialist illusions.

Australians, as Dr Sydney Morris and Lady Munro Ferguson believed, were resistant to large schemes, particularly with an imperialist component. The nationalist Bulletin magazine, founded in 1880, presented a symbolic outlet for the invective of the unconverted. The prophet from Maoriland earned the ridicule of the Bulletin in 1925 for his 'intensely, almost bigotedly, patriotic belief in the merits of his own Dominion,' that drove him to damn 'with bell and candle everything Australian and all who do not blindly follow his methods in every fetichistic detail.' It is no
coincidence that this article, minus this quotation, reappeared in the 1925 report of the Royal Society for the Welfare of Mothers and Babies. The pages of infant welfare reports and of baby manuals, as of the Bulletin, exude shades of difference between Australians and New Zealanders of Anglo-Celtic descent. Jock Phillips has found no Bulletin school in New Zealand; though the Bulletin itself was Australasian in reach, its popularity did not venture far enough to produce a comparable intellectual history in New Zealand, a difference which Phillips explains by the lack of an Irish-Catholic community big enough to produce an equivalent to Australia's radical anti-British tradition. Oliver MacDonagh elegantly develops this picture: Irish cultural influences had been 'woven into the fabric of white Australia since its beginning ... standing as a permanent counter and challenge to many of the orthodoxies imported, unchanged or little changed, from Britain'. But in New Zealand, British cultural influences remained unchallenged by Irish resentment of British pretensions to dominant respectability. It is possible that in New Zealanders' stronger indoctrination in British codes of behaviour and Australians' heavier Irish settlement we might begin to find the sources of propensities to dogmatism and easygoingness. The latter, moreover, comes easier in a hotter, drier climate conducive to leisure. In Australian soil the contest between Truby King and Pritchard supporters grew to be a clash of patriotisms.

The contest, begun in professional rivalry, continued in that vein. Nationalism mingled with medical jealousies. Truby King's echoing of others made it easier for his opponents to accuse him of being out of date and irrelevant. The Australian profession centred in Sydney and

Melbourne resented being catechised: Truby King was a 'free lance'. Springthorpe alleged that Australians who hated or 'would not admit even his name' sought comfort in their world eminence and superiority over a mere doctor from Dunedin. Between Truby King and the specialist paediatricians, Clubbe and Jeffreys Wood and Jefferis Turner, for example, this rivalry centred on personalities and reputations and their different specialisms, of paediatrics and psychiatry. Between the prophet and younger members of the profession the age difference also proved to be important. Young doctors such as Kate Campbell, Harper and Morris were more open to new ideas and more able in their better health to carry them out - and in Scantlebury Brown's case, better able even in sickness.

The Pritchard and Truby King schools fought doctor against doctor, and over the relative authority of doctor and nurse. Routinely, children's physicians despised infant welfare nurses, and the Australians were no exception. Having encountered hostility among doctors in New Zealand, Truby King exalted the role of the nurse and thereby found his faithful. Sydney's practitioners invoked Pritchard in their insistence on continuous medical supervision, on the grounds that ministering to mothers and babies was difficult work requiring the doctor's knowledge, discrimination and experience, whereas Truby King helped to make fashionable the notion of giving the nurse full charge of the healthy baby. These jealousies were exaggerated by the authority seen to be exercised by Truby King's nurses; at the Karitane hospital, as Matron McMillan had demonstrated in 1923, infant

97 Springthorpe documented the Melbourne establishment's attitude, in Diary 12, 26 Dec 1927, Diary 13, 5 Dec 1929, Diary 14, 28 Jul 1930. Litchfield described Truby King as a 'free lance', in RSWMB, General Council, Minutes, 6 Jan 1920, Report B, 4/1; Truby King denigrated Jeffreys Wood's child specialist view in Argus, 17 Feb 1923; see also RSWMB, Annual Report, 1923-4, pp.9-10; DT, 7 Nov 1925; Truth, 8 Nov 1925, RSWMB, 11/2

98 On Scantlebury Brown's battle with cancer, see Reiger, 'Vera Scantlebury Brown: Professional Mother', in M. Lake and F. Kelly (eds), Double Time, chap 31; Wendy Kapper, 'Biographical Notes on Dr Vera Scantlebury Brown', Scantlebury Brown Papers. Her illness added haste and refined her vision. See p.229

99 Ed, MJA, 23 Nov 1918, p.436, 6 Dec 1919, p.488; RSWMB, Annual Report, 1923-4, pp.9-10
feeding was the matron's preserve. Though the nurse traditionally obeyed the doctor's orders, Truby King's competitors complained that his nurses were 'fanatically opposed' to any divergence from his regime, to the point that if instructed otherwise they would transgress their duty to the practitioner and follow Plunket rules. So convinced had been McMillan of her rectitude in her conflict with Harper that even her mentor rebuked her in 1923 for seeing the medical profession as 'less than secondary' to his health missioners. The more Australian doctors condemned infant welfare nurses for their inadequate training, the more Truby King damned his own profession for neglecting to instruct medical students in mothercraft and infant welfare.

Each side belittled the other's nurses. While Springthorpe mocked the Baby Health Centres for giving preference to 'diseased Children's Hospital' nurses, Victorian Baby Health Centre nurses decried the teaching at the Tweddle Hospital as 'Twaddle'. Until 1928 the main difference between the Truby King and Victorian Baby Health Centre training schools was the Victorians' decision not to build a residential training home or hospital, like the Royal Society's Tresillian home in Sydney, but to save money by using existing institutions, such as the Foundling Hospital in East Melbourne, supplemented by the non-residential training school opened in 1920 at the South Melbourne Town Hall. From 1928 even this difference disappeared; all nurse training became residential, although the opponents, ever sectarian, continued to distinguish between the Karitane hospital, that Truby King-ites had hoped would 'attract rising girlhood to the best advantage' with its Nightingale nursing hierarchy under a Plunket matron; and the

100 Morris, Conference of Representatives of AMS, 16 May 1930, 2/8566.1; Main and Scantlebury observed that dieting at Karitane was entirely in the hands of the matron, Report to the Minister of Public Health, p.29
101 Truby King to McMillan, 19 Apr 1923, PS AG7/128/931
102 Springthorpe, Diary 14, 28 Jul 1930; Sister Leila Ramsay, interview, Geelong, 19 Dec 1984
more flexible Baby Health Centre curriculum taught in an increasing variety of places: the Presbyterian Babies' Home, which in addition to the Foundling Hospital and Victorian Baby Health Centres, taught infant welfare nurses from 1930; and the Methodist Babies' Home, Church of England Babies' Home and Mothercraft Home of the Company of our Lady of the Blessed Sacrament, which instructed mothercraft nurses.103

Each side accused the other of hospitalising babies without their mothers. 'No Home started in Sydney', W.F. Litchfield declared, 'has ever been a success which takes in babies without their mothers.'104 Harper had sought to transplant to Sydney a modified Karitane hospital because she found that three-quarters of babies at the Dunedin hospital were admitted alone. In practice more babies than mothers entered Australian mothercraft homes, though more mothers accompanied their babies than in New Zealand. But the dispute suggests that the Australians, versed in the dangers of infants' hospitals, especially for babies with feeding difficulties who could readily succumb to intestinal infections, gave greater weighting to the perils of cross infection. This thesis is strengthened by the Australians' refusal to allow their nurses to judge baby shows because of the dangers posed by gathering babies together - whereas Springthorpe, aided by his wife Daisie and her 100 helpers, held a baby contest on his front lawn.105

The dispute extended to doctors and the laity. Egged on by medical advocates in Sydney who in their own interests wanted a medical man to lead the Royal Society for the Welfare of Mothers and Babies, Truby King vilified Innes-Noad. He condemned him as an unfit layman, his unfitness to have charge of the mothers and babies of New South Wales proven by the

104RSWMB, Minutes, 6 Jan 1920, Report B, 4/1
105VBHCA, Minutes; RCH, Evidence of Jeffreys Wood, 10 Feb 1925, qq.2047, 2074, 2083; 'Vesta', Argus, 9 May 1923; Springthorpe, Diary 10, 22 Sep 1923
infant mortality rate. But it would not do to have Innes-Noad replaced by Harper, whose radical departure from his teachings had caused Tresillian to break away from Plunket. Instead he urged the New South Wales government to appoint a board of six medical men in 1925, to replace the traitorous Royal Society. In anger, he contravened his own democratic principles, which underpinned the success of his movement.

For many, but not all of the battles Truby King's irascibility was the crux of the problem. His visits to Australia spanned the ages of 61 to 73, and the difficulties that accompanied his advancing age, his poor health, and his wife's death in 1927 after her health broke in 1924, impinged upon the controversy. The older he grew, the more his idealism and perseverance degenerated into dogmatism. We now know that his symptoms are consonant with the onset of Alzheimer's disease. That he lived much of his life in an asylum, too, in all likelihood encouraged him to be idiosyncratic. At times - in 1930-1 - he possessed to observers the look of madness. To the end he retained his hope to lead Australia's conversion, despite the mental ravages that saw him return to Melbourne from a fight over protein in London in 1931, without money or a suitcase, only to be found in a hotel room trying to pack his belongings into a non-existent bag. The dispute was prolonged in Australia for the added reason that an ailing hero made Australia's conquest his last goal.

'I am so tired of pugnacious old men', Dr Vera Scantlebury Brown, then aged 40, remarked in 1930. Truby King's visits always upset her. She

106SMH, 23 Oct 1925; DT, 25 Oct 1925
107Dame Kate Campbell recalled that Vera Scantlebury Brown once said of Truby King "He's mad, Kate; he has that look in his eye", interview by Wendy Kapper, nd (1976). Information on Alzheimer's disease from Karitane hospital, Wellington, Aug 1988
108Dr Guy Springthorpe, interview by Wendy Kapper, nd (1976); Mary Truby King, Truby King the Man, pp.334-5, 347. Truby King declared at the annual meeting of the SHWC in 1931 that the 'aim of his life at present was to bring about similar unity [to Plunket] in the method of teaching and training mothercraft in Australia', SHWC of Vic, 12th Annual Report, 1931-2, p.3
109Scantlebury Brown, Diary B9, 8 Feb 1930, p.88
dreaded them beforehand, anticipating the fisticuffs to follow; on one occasion she thought she would be 'dead' shortly on his arrival: 'Soon the sparks will fly when T.K. comes but what do I care?'\textsuperscript{110} Three months later, alive, she wrote incredulously: 'Of course New Zealand is as perfect as ever and T.K. still going strong. I believe he is coming over here again! Probably to interfere with my nursery [Karitane] nurses' scheme ...'.\textsuperscript{111} Scantlebury Brown was no foe of Truby King. On his good days she thought him clever to the point of genius, and utterly charming.\textsuperscript{112} Her ambivalence grew from his unpredictability that prompted J.W. Springthorpe to confide that even he was never sure of him. 'Is Truby King,' he asked, 'with all his genius [and] success a fool and a Knave?' He could not believe it, though he was artful, 'secretive, and careless of gratitude.' Truby King disturbed him with his 'mixture of finesse and absentmindedness'. Springthorpe's doubts sprang first from the frequency with which he was ignored, for in Australia Truby King concentrated not on the converted, but on the to-be-converted in the opposition. His worries derived secondly from Truby King's state of mind. The prophet had the urgency and 'uncertainty of stay of a genius', up every night until 2 a.m., enchanting his audiences, fascinating politicians, public servants, women whose faces showed interest, agreement, approbation; he could 'artlessly disguise his aims' but be cautious in their pursuit, he could be liberal with praise, or 'ropable', as during his July 1929 visit when he spied Sister Muriel Peck's book \textit{Your Baby} being used by the Truby King nurse in Preston.\textsuperscript{113} At the Melbourne Town Hall during this visit, an hour late, as usual, for his meeting with the Mayoress, Scantlebury Brown remarked with surprise that old age had mellowed him because he

\textsuperscript{110}Scantlebury Brown, Diary B8, 28 Nov 1929, p.16, 8 Dec 1929, p.21
\textsuperscript{111}Scantlebury Brown, Diary B9, 7 Feb 1930, p.81
\textsuperscript{112}Scantlebury Brown, Diary B6, 8 Jul 1929, pp.26, 30, 25 Jul 1929, p.29
\textsuperscript{113}Springthorpe, Diary 13, 15 Jul 1929, 18 Jul 1929, 20 Jul 1929; Scantlebury Brown remarked on the same episode that he 'absolutely seethed', Diary B8, 25 Jul 1929, p.28
had been eulogistic and tactful: 'Everyone purred'. When she drove Truby King back to his hotel after dinner a few nights later, however, 'T.K. talked all the time and like a fool, I put in one or two queries about [the] Infant Mortality rate ... he nearly hit the roof. I could not do much as I was driving on a dark slithering road. Even Mary [Truby King] tried to stem the tide but only a necessary stop at the Hotel ended the matter for the time being. I arrived home 1 a.m. weary with so much jabbering'. She was sad in 1931 when he sent her lawyer's letters threatening to sue her for taking over his ideas.

NEW ZEALAND AS MODEL

As a prophet, Truby King did succeed in making New Zealand a model for Australia. First, the states established infant welfare training schools, with courses in infant welfare and mothercraft nursing which borrowed heavily from New Zealand. In Sydney (Tresillian), Melbourne (Tweddle) and Hobart the schools took the form of mothercraft homes, deliberately or disputedly on the Karitane model; Adelaide followed with Torrens House in 1938, by which time the shape of the mothercraft institution, titled the infant welfare training school to avoid the notion of a hospital, had become Australian. However much Australians suspected the Karitane hospital for its dangers of infection to the artificially fed baby, they were attracted by its gardens and verandahs which resolved the problem of cot proximity because the babies lived outside. Largely because these institutions were established in the 1920s, the New Zealand Plunket and Karitane nurse were influential in shaping the standard of training for the Australian infant welfare nurse, of three months' training for a general registered nurse.
(increased to four months by 1928), and of one year (15 months by 1933) for the mothercraft nurse, otherwise titled the mothers' help or the nursery nurse. But the Australian nurses paid lower fees, while those already working in baby health centres and as bush nurses paid nothing.  

Second, Truby King's position as Director of Child Welfare under the Health Department in New Zealand provided the immediate model for the appointments in 1926 of Directors of Infant Welfare (in New South Wales, a Director of Maternal and Baby Welfare) in New South Wales, Victoria and Queensland. This proposal originated from the Royal Commission on Health in 1925 and was backed by the Director-General of Health, Dr J.H.L. Cumpston, who had visited New Zealand in 1924 and returned impressed both by New Zealand's maternal mortality campaign, and by the wholesale inspiration that characterised the baby health movement. Truby King's visit to New South Wales and Victoria in 1925 acted as the precipitant by making these appointments seem opportune.

Through sectarianism, New Zealand also served as an anti-model because the dispute goaded Australians to establish local standards and publish their own books. *Notes for Mothers* was promptly replaced by Margaret Harper's *Parents' Book* (1926) in New South Wales, while Vera Scantlebury Brown tried to please everyone with her *Guide to Infant Feeding* (1929), which listed Truby King's humanised milk for special occasions alongside Pritchard's everyday high protein recipes. These works, that set the standard for baby health centres throughout Australia,

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118 *Una*, 1 Apr 1927, p.53; RSWMB, *Annual Report*, 1928-9, pp.9-10, 1932-3, p.6; the Victorian Baby Health Centres and Sydney's Royal Society avoided the term mothercraft nurse because of its possible confusion with infant welfare nurse, VBHCA, *Minutes*, 29 Sep 1931; the fee for the infant welfare course was £10 10s by the Second World War; advertisements in *Una*, 1 Mar 1940, p.94, 1 May 1942, p.iii

119 RCH, Evidence of J.H.L. Cumpston, 10 Feb 1925, qq.2016-17; Truby King's position had antecedents in Britain and the United States

120 DGP to Min, 10 Nov 1925, Harkness, Statement for Cabinet, 13 Nov 1925, 2/8566.2

121 Scantlebury Brown wrote the book so that the young men of the medical faculty at the Melbourne Children's Hospital in particular would accept it, Diary B4, 4 Feb 1929, p.60
outsold the 1923 Australian edition of Truby King's *The Expectant Mother, and Baby's First Month*, of which 20000 were printed, but only 7200 sold by July 1925. Truby King himself bought the bulk of the remainder, to distribute in New Zealand.\(^\text{122}\) Eventually the Australians, by drawing at first on American figures and later by compiling their own babies' weight charts from the records of children attending the centres, overcame the discrepancy between the weight for age lines used by Pritchard and Truby King.

In Victoria, Truby King made the peaceable Dr Scantlebury Brown's job harder by helping to thwart her goal of unity. In this negative sense he propelled her along; his 1925 visit issued in her being sent again to New Zealand to write the report on infant welfare in Victoria and New Zealand that secured her position in 1926 as Director, while it supplied her report's co-author, Dr Henrietta Main, from London, who accompanied Truby King to Australia the better to study his regime. But in the end Scantlebury Brown's will and visionary powers drove her to achieve, despite obstacles, not unity for Victoria, but uniformity through variance, beginning with a state examination and certificate for infant welfare nurses in 1927. In this way she overcame the welfare warfare.

Scantlebury Brown's outstanding quality, among many, was her humanity. An abundance of training schools - eight by 1938 - and a state infant welfare examination of themselves overcame problems of disagreement and jealousy. But Scantlebury Brown went further and invited all the matrons to dinner; she wanted them to be friends. By the same token, she held Christmas parties for all the infant welfare nurses in Victoria; she forged cooperation with her own friendship and grace; round Victoria, she charmed local councillors and appeased local general practitioners, she opened centres in her children's school holidays in the late

\(^{122}\) The actual number sold of the 1923 edition was 7288, while Truby King purchased 9496 copies in 1926, letter from Angus and Robertson, publishers, 4 Mar 1987
1930s and war years, and everywhere won people over with her unpretentious interest in them.\footnote{Scantlebury Brown, Diaries; Scantlebury Brown, Biographical Notes (1 folder), SLV; Cath James, interview, Melbourne, 12 Sep 1985}

If Plunket nurses were recognised in Victoria, encouraged by a Director determined not to be swayed from her scheme, welcomed in Tasmania, and confined largely to country towns in South Australia, they were outlawed from baby health centres in New South Wales. For their remaining outcasts from the public system for 40 years - until 1966 - Truby King was in part responsible. His outbursts determined Morris's resolve: as Director-General of Public Health, he blocked devotees' appeals for admittance to the government fold until the 1950s. He persuaded successive ministers, including the former Birth Rate Commissioner, Dr R. Arthur, to refuse to recognise the Australian Mothercraft Society and grant a subsidy because it presented itself as the 'upholder and exemplar of the one true faith of infant welfare'. Recognition, he believed, spelled disharmony. The Australian Mothercraft Society was a hostile body, formed in protest and not, as Truby King-ites would have it, the parent of the New South Wales scheme. Truby King's nurses were merely sales representatives for his emulsion and his sugar, who if admitted to the baby health centres would 'push these things', a prejudice seemingly confirmed in 1929 when Truby King moved his house and his daughter to Sydney to open a Karitane Products Factory in Redfern, to circumvent the Australian import duty on his Karilac (sugar) and emulsion, Kariol.\footnote{2/8566.1, AONSW} Deprived of the baby health centre market, the factory incurred large losses. In Sydney, Adelaide and in Melbourne, nonetheless, his nurses attracted publicity by weighing babies in a department store.

Truby King-ites remained in the minority in Australia. Excluded from the New South Wales official total of 240 baby health centres by 1944, the
Australian Mothercraft Society ran 15 clinics. Had the outlaws been counted, New South Wales would have recorded a total of 262 by 1944-5, ten fewer than the Victorian total of 272 centres.\textsuperscript{125} The Victorian sects fared better; by 1930 ten per cent of all the centres were loyal to Truby King, compared with 60 per cent affiliated to the Victorian Baby Health Centres Association. But the conflict had a further effect, in ensuring that 30 per cent of centres would be independently run by local councils. By 1944 the Society for the Health of Women and Children had gained some ground, increasing its share to 17 per cent, while the Victorian Baby Health Centres, having advanced to 70 per cent by 1939, fell back to a 60 per cent majority.\textsuperscript{126} By this institutional count, Truby King enjoyed a larger following in Victoria than in New South Wales. However the dispute itself and the shape it took proved more important in dictating the respective sizes of the factions; in New South Wales the denial of public money hindered expansion. In Adelaide, as elsewhere in Australia, Truby King followers could not compete against already existing organisations, in this instance the Mothers' and Babies' Health Association (renamed in 1927), led by the influential Dr Helen Mayo. In an Australian twist, the South Australian Trotting Club backed Adelaide's small band of devotees.\textsuperscript{127}

The conflict suggests that the mission to save babies was another expression of secular Protestantism in an era when church attendance was on the decline. There is some support for this thesis in that baby health centres drew their most likely recruits from private Protestant girls' schools, a pattern that the historian Peter Spearritt has shown was paralleled in the

\textsuperscript{125}Commonwealth Year Book, 1944-5, p.267; Cwlth Dept of Health, The Infant Welfare Centre as a Community Service, Canberra, 1944, p.10
\textsuperscript{126}Vic Dept of Public Health, Reports of the Director of Infant Welfare
\textsuperscript{127}Truby King Mothercraft League of SA, Minutes of Annual Meetings, 15 Nov 1937, 13 Nov 1939, Mortlock Library SRG 9
kindergarten movement. But the links with the churches who sponsored the various Victorian infant welfare training schools show no set pattern; not only did these include the babies' homes run by the mainstream Presbyterians, Methodists and the Church of England, but the Bethany Home at Geelong by the late 1930s, and the Grey sisters at Broadmeadows, who allied with Truby King in 1931. Rather, the mission to save, riddled by sectarianism, bound the forces of 'organised virtue'.

This health mission and the greater receptivity of the populace through schooling enabled Truby King's message to have a wider constituency than his official or measurable influence might allow. Despite Australian medical hostility and resistance, he enjoyed extraordinarily widespread exposure in Australia lasting into the 1950s, through women's magazines, newspapers and radio, especially station 2UE, owned by the Scottish Lamb family. His credo was spread by his disciples, by Matron McMillan in the 1920s, in the Sydney Daily Telegraph and the Australian Woman's Mirror, by Sister Maude Primrose in the New Idea, and by Mary Truby King, his adopted daughter, who moved to Sydney in 1929, and in the 1930s wrote for the new Australian Women's Weekly. Her book, Mothercraft, published in 1934, turned motherhood from a duty into a joy and made Truby King's message more Australian. Mary Truby King's real Truby King baby was breast fed four-hourly for nine months, slept in the wicker work Plunket cot and wore a safari hat to protect his or her neck from the Australian sunshine. Some people believe the rigorous upbringing imposed by the 'fairy godfather of babies', as the Sunday Times called him, might have

129 Vic Dept of Public Health, Reports of the Director of Infant Welfare
130 Her articles began in September 1933. On Primrose in the New Idea, see again Reiger, Disenchantment of the Home, pp.139, 142
moulded Australians, and New Zealanders even more; though to what degree depends on what mothers were doing.131 This is considered in the next chapter.

More than any other systematiser, he made the issue of mothers and babies visible and important. He put them on the agenda in terms of expenditure as much by his invective as by his broad appeal. It is here, in the firing of public and political awareness, where Truby King's true significance lies; he affected mortality less by his methods than by stirring up anxiety about standards of motherhood.

WARFARE IN PERSPECTIVE

But the battle was superfluous to the fall in the infant mortality rate. The sectarianism of the movement was uneven, and so was its growth across Australia, as Table 12 shows. By 1931 over 300 centres dotted Australia, of which three-quarters were in Victoria and New South Wales (134 in Victoria and 88 in New South Wales). South Australia followed with 45 centres, while Western Australia and Queensland worked with 17 and 16 respectively. Tasmania had eight, and one served the new bush capital of Canberra. This number rose to over 800 by 1945, greatly assisted by the enthusiasm of the Country Women's Association; three-quarters of the new centres set up from the 1930s opened in the country.

131Sunday Times Pictorial, 17 Feb 1929, RSWMB, 11/2
Table 12  Growth of Baby Health Centres, 1919-1945

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These totals include sub-centres.


In Queensland the movement gained impetus when Dr Phyllis Cilento and the National Council of Women established the Mothercraft Association in 1931. Dr (Lady) Cilento had studied under Pritchard and Truby King in London and became an authority on nutrition and the new vitamins.132 New South Wales passed 200 in 1938 - 60 centres were established in a mere two years, after the Depression - but Victoria maintained the lead, with 272 centres in 1945. Another period of rapid growth followed after the war. If the work of the centres were decisive, we would expect that the trends in infant mortality would correspond with the growth of the baby health movement in each state. The fact is, however, as shown in Figure 2, that infant mortality went down evenly between the states - just as steadily in Tasmania and Western Australia, where the centres were fewest, as in Victoria, where they were most numerous. Across

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Australia, then, the pattern was one of inappropriate relationships in space, as well as in time, between putative cause and effect.
PART III: OUTCOMES
CHAPTER 7
MOTHERING

'Better Babies Indicate Better Knowledge of Mothercraft', enthused the *Sydney Morning Herald*'s women's page of 8 February 1934. No longer was gastroenteritis the 'horror of the summer months', for mothers had learned at the baby health centre to protect their babies' faces and food from flies, and to build their children's resistance through regular habits of eating and sleeping, exposure to sunshine and fresh air. Beyond a doubt, pronounced the *Herald*, 'all this teaching is having its effect in the reduction of the infant deathrate.'\(^1\) Already the claims of the baby health movement had encrusted into a dominant interpretation.

The older, popular version of events is that the movement effected the reduced infant mortality rates, but this raises general policy questions. In this chapter I want to probe the contribution of the baby health centres by assessing what happened to mothers and babies, what they thought about it, and what results ensued, thereby placing Truby King and his Australian contemporaries in perspective.

Before turning to actual babies and mothers in order to make some judgments about effectiveness, it is necessary to review the underlying trend in infant mortality between the wars. By 1930 the infant death rate in Australia, as in the United States and England, had more than halved since the turn of the century, to permanently below 50 deaths per 1000 live births.\(^2\) Much of the fall, as previously indicated, was due to the subsidence of infant diarrhoea. Deaths attributed to diarrhoeal diseases fell in Victoria by 80 per cent between 1901-10 and 1928-32, while respiratory deaths declined by 25 per cent, half the fall in mean infant mortality; by the 1930s fewer babies died

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\(^1\)The Clinic Way with Babies', *SMH*, 8 Feb 1934, RSWMB, 11/2

\(^2\)Appendix 2; Young and Ruzicka, 'Mortality', in UN ESCAP, *Population of Australia*, vol 1, p.161
from diarrhoea and enteritis than from bronchitis and pneumonia. In Sydney the official total of baby diarrhoeal and enteritis deaths subsided from 443 in 1920 to 36 in 1934. While these figures must be used with caution, they offer some guide to the significance of falling infant diarrhoea for the reduced infant death rate.

Among babies whose births and deaths were registered (that is, non-Aborigines) the greatest rate of change in the course of the infant mortality rate since the early 1900s was with the onset of the Depression. In Figures 1 and 2 it is evident that the gradient of the fall in infant mortality across Australia and in each state from the second half of the 1920s to the first half of the 1930s was steeper than that in preceding or following intervals. In the decade 1930-1940 there was a marked lag in the downward trend.

True to its role as an index of relative poverty, infant mortality in working-class suburbs of Australian cities remained high in the late 1920s and into the second half of the 1930s despite the long-term transition to improved infant survival. Fitzroy, the suburb which traditionally produced the highest infant death rates in Melbourne, recorded an average rate of 75 for the five-year periods 1925-9 and 1930-4 when the middle-class suburbs of Camberwell and Kew registered falls of 20 and 24 per cent, from 41 to 33 and 48 to 36 deaths per 1000 live births. At the same time the mainly working-class suburbs of Footscray and Coburg, served by Truby King centres, showed declines from 60 and 56 to 44 deaths per 1000 live births between 1925-9 and 1930-4. Infant mortality in working-class Richmond was higher in the later than in the earlier 1920s, with an average rate of 73 in 1925-9, which fell to 57 in 1930-4, a decline of 22 per cent. In Collingwood the infant mortality

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rate fell from 89 in 1920-4 to 78 in 1925-9, and by another 13 per cent to 68 in 1930-4. These higher infant death rates in working-class suburbs were 'pushed up by an increase in prematurity', which was probably a pseudonym for low birth weight, and in epidemic years by infant diarrhoea. Both of these major causes of deaths respectively in the neonatal and post-neonatal age groups were known to be associated with poverty and poor diet, in the former case with the nutrition of the mother. Infant mortality was a sensitive index of living standards in working-class suburbs hardest hit by unemployment, and the slower rate of change in the 1930s suggests that infant survival was adversely affected by difficult social and economic conditions. All but the babies in the poorest families, however, whose death rates were more than double those of middle-class infants, shared in the overall improvement in survival chances in the first year of life.

Arguably the infant mortality rate was able to fall through the Depression because mothers bore more of the emotional and physical cost. Oral and social histories of the Depression suggest that mothers acted as a buffer for children and men in times of emotional and physical hardship. While government-subsidised supplies of milk, eggs, vegetables, oranges and cod liver oil emulsion for expectant and nursing mothers and babies of men on sustenance in the 1930s were much appreciated, the dole in every state was inadequate to maintain nutritional standards.

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5 Five-yearly averages are calculated from annual rates in Victorian Year-Books. See also Fitzroy, Health Officer's Annual Report, 1933, PRO 4544/14

6 Quotation from McCalman, Struggletown, p.208; a useful source of infant diarrhoea data is Hilda Kincaid, 'Child Welfare Work 1932', CMCP, p.5 (480)

7 For the debate on infant mortality as an indicator of standards of living in the Depression in Britain, see J.M. Winter, 'Infant Mortality, Maternal Mortality, and Public Health in Britain in the 1930s', Journal of European Economic History, vol 8, 1979, pp.439-62, who emphasises the secular trend towards improvement in infant survival and life expectancy; and, on disparities in the level of infant mortality by social class, Charles Webster, 'Healthy or Hungry Thirties?', History Workshop Journal, issue 13, Spring 1982, pp.110-29; Margaret Mitchell, 'The Effects of Unemployment on the Social Condition of Women and Children in the 1930s', History Workshop Journal, issue 19, Spring 1985, pp.105-27

8 See, on New South Wales, Robin Walker, 'Mr Lang's Dole: The Administration of Food Relief in New South Wales, 1930-1932', Labour History, no 51, Nov 1986, pp.70-82; Judy
milk distributed by infant welfare sisters from May 1930 benefited only a few: 32 babies in Fitzroy at the close of the year, for example, about three per cent of individual babies at Fitzroy's two centres, and a paltry proportion of all babies and expectant mothers in this suburb noted for its high infant death rate. There is evidence that mothers, responsible for the housekeeping, deprived themselves of food at times to feed their families. McCalman depicts the struggle that was hardest for working-class women closest to the margins: men did not do without drink and cigarettes but 'poor Mum could just manage as best she could.' In families which escaped the privations of unemployment, mothers still strove to ensure that their baby's food requirements came first. Mrs Dulcie Maidment's husband's wages as a government revenue clerk were reduced in the Depression and 'our own diet became low on quality', but she managed to adhere to the Sydney clinic's recommended diet for the tot. 'I can remember buying (or asking for and getting) a single spinach leaf to make a broth with rice and often bought one piece of fruit at a time.' Foregoing the attractions of the beach for better nutrition, this family moved about 1933 from Bondi to Glebe where rents were lower; the cottage 'had only a fuel stove and a gas ring for cooking and the fuel copper had to be boiled up for our bath water. ... We still had to budget carefully but we were happy enough.' Mrs Maidment contrasted her life with those of women she knew, 'whose husbands had lost their jobs who had to do housework for better off people and were very badly paid for

Mackinolty, 'Woman's Place ...', in Mackinolty (ed), The Wasted Years? Australia's Great Depression, Sydney, 1981, pp.105-10. Sister Annie Bath of Wonthaggi, Victoria, wrote in 1933 that 'the special subsidy for nourishment for mothers and babies has been a great help and much appreciated', Wonthaggi Centre, Borough of Wonthaggi, Nurse's Annual Report, 1932-3  
9City of Fitzroy, Committee Minute Books, 29 Sep 1930, 2 Mar 1931, 29 Feb 1932, PRO 4544/12  
10Mackinolty, 'Woman's Place ...'. Cf. chap 4. For British evidence of the poor health of married women in the Depression, see Lewis, Politics of Motherhood, pp.46-7  
11McCalman, Struggletown, pp.201-2; Wendy Lowenstein, Weevils in the Flour: An Oral Record of the 1930s Depression in Australia, Melbourne, 1978, pp.142-4, provides another example
their labours and were sometimes humiliated. The greater the hardship that a woman suffered, the more the baby's nutrition depended on the mother's denying herself, with consequent implications for women's health and the spontaneous and - criminal - abortion rate.

The crude birth rate also fell more rapidly during 1929-33 than in any other period since the 1890s before reaching its nadir in 1934. Into the Depression, women who would have liked more children sacrificed motherhood on the utilitarian grounds that they could give happiness to a restricted number, with the result that the generations of women born in 1906-1908 proved to have the 'lowest completed fertility on record'. Infant mortality 'seems to vary directly with the size of the family', Dr John Dale, Medical Officer of Health for the City of Melbourne, wrote in 1932, not forgetting the influence of long-term improvements in hygiene and medicine on the waning of lethal epidemic disease. But given the physical and emotional distress that Dale saw around him, he could not believe that lowered mortality rates translated in the Depression into better health.

The impact of hardship could well have been cumulative, by affecting, for example, the proportion of low birth weight babies born to anaemic, poorly fed mothers. So too, was the impact of reduced fertility which precarious finances compelled. Infant mortality in each state slowed its downward trend in the 1930s only to be followed by another period of rapid change during the Second World War.

During these years the age-specific death rates of women aged 20 to 45

12D. Maidment, letter, 20 Jul 1987
13For example, in New Zealand in 1930-5, 138 of 176 deaths attributed to septic abortion were in married women. Of 109 women who died from abortion sepsis in this period leaving motherless 338 children, a majority had husbands in working-class occupations. Mein Smith, Maternity in Dispute, fig. 7, p.107
14Ruzicka and Caldwell, The End of Demographic Transition in Australia, p.200. Mrs Wright, of Ballarat, had two children but 'would have liked more', interview, Wonthaggi, 16 May 1986. McCalman, Struggletown, pp.200-3 provides further examples. Fertility trends are given in Appendix 5
15City of Melbourne, Annual Report of MOH, 1932, CMCP, 1932-3, p.464
continued to fall. The difference between the sex mortality patterns is a better indicator of the health status of mothers, however, as it is more likely to show whether and when women of childbearing age suffered any disadvantage relative to their husbands. Appendix 6(A) plots the difference between male and female age-standardised death rates from 1908-76. The flatness of the trend before 1935, compared with the steady improvement in death rates in favour of women since that time, does not contradict the argument that women were a buffer for their families.

The fall in diarrhoeal mortality made the capital cities relatively safer than outside the metropolis from the late 1930s (Table 4). Generally differences between and within countries narrowed as the infant mortality rate fell. One exception was that, while it had always been less dangerous to be born in the metropolis than in a mining town, in the Hunter Valley coalfields or at Broken Hill, or in Victoria at Ballarat, urban provincial areas became less safe than the capitals. The cities and principal towns outside Melbourne - Bendigo, Ballarat and Geelong in Victoria - showed consistently higher infant death rates than the metropolis throughout the 1930s. Indeed, a Sydney or Melbourne baby from the late 1930s enjoyed a better chance of survival than a non-Maori New Zealander born in Wellington or Christchurch.16 The major exception to the pattern of closing differentials was the disparity between European and Maori in New Zealand, and in Australia between European and Aborigine; for Aborigine and Maori, the infant mortality and fertility transitions, as in less developed countries, were delayed.

In the metropolis, the differential between richest and poorest local government areas diminished from 300 per cent at the turn of the century to 200 per cent by 1940.17 The statistical relationship between infant death rates

16 Victorian Year-Book, 1940-1, p.95; Commonwealth Year Book, 1944-5, p.542, 1951, p.620
17 Table V(b), CRS A1928, Item 155/1 sect 4 (Melbourne); Spearritt, Sydney Since the Twenties
and crowding, a known correlate of poor living standards, could be mapped in any time period, the only difference over time being the widening (in the late nineteenth century) and then the narrowing of extremes. It is customary for historians of Melbourne to characterise the Yarra River as a social barrier or divide between the working classes and the well-to-do. On the eastern side, the comfortable dwell in spacious suburbs on high ground, as they have done since the 1840s and 1850s, divided from the 'lowly riverside slums' to the north-west of the river. The regression line in Figure 15, drawn at the request of Scantlebury Brown, shows that this idea found statistical support in 1926, in the relationship between the infant death rates in Melbourne suburbs and the number of people per acre. Scantlebury Brown concluded from the regression equation that the infant mortality rate in 1916-25 varied directly with population density above a basic rate of 4 per 100, which she interpreted as the neonatal mortality rate (known to contemporaries as a constant). The regression line itself can be related to the River Yarra: we may imagine that the line is the divide. To one side, in reality the north-west, fell the suburbs of low social ranking, and to the other the suburbs of higher status on the higher ground south and east of the river. Richmond was the only working-class suburb with a density value below the line, that is, to have a relatively lower infant mortality rate for its degree of crowding. This is readily explained by Richmond's possession of a hill, and a residue of well-off inhabitants. Not only was the weather different on both sides of the Yarra (South Melbourne is more protected), and the soil damp in the north-west, but the well-to-do early chose the hilltop because they recognised that the higher, drier ground

18 Davison, The Rise and Fall of Marvellous Melbourne, pp.148-50, 'Introduction', in Davison, Dunstan and McConville (eds), The Outcasts of Melbourne, pp.21-22; Larson, 'Growing Up in Melbourne', p.19
19 Main and Scantlebury, Report to the Minister of Public Health
Figure 15  
Population Density and Infant Mortality  
Melbourne, 1916-1925

Infant Death Rate per 100 Births

Population Density - People per Acre

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1. Melbourne City  
2. Brighton  
3. Brunswick  
4. Camberwell  
5. Caulfield  
6. Coburg  
7. Collingwood  
8. Essendon  
9. Fitzroy  
10. Footscray  
11. Hawthorn  
12. Kew  
13. Malvern  
14. Northcote  
15. Port Melbourne  
16. Prahran  
17. Preston  
18. Richmond  
19. Sandringham  
20. South Melbourne  
21. St Kilda  
22. Williamstown

Regression equation, drawn through most reliable density values marked ●

Death rate = \( \frac{\text{People per acre}}{6} + 4 \)

Source: Main and Scantlebury, Report to the Minister of Public Health
was healthier as well as more aesthetically pleasing.\textsuperscript{20} The better off consequently ensured, by their environment and their behaviour, that class bought lower post-neonatal mortality.

\textbf{WONTHAGGI: A CASE STUDY}

I sought evidence about babies and mothers and the contribution of the centres, and helped greatly by Sister Helen Keltie of Wonthaggi, found material which provides an insight into the fates of babies who died of infant diarrhoea between 1927-8 and the Second World War. Wonthaggi, a coaltown in Gippsland, south-east of Melbourne, near the sea, offers a case study of a working-class community during the fertility and infant mortality transitions. It is a government town of weatherboard cottages, built to house miners to work the state coalmine that opened in 1909. Wonthaggi has always been poor; its wooden buildings stand out in contrast with the heavy brick architecture of urban south-eastern Australia, where wood is a symptom of poverty, with some environmental exceptions; and its unmade roads jolt after the tar seal of the road from Melbourne.

In Wonthaggi, poverty did not preclude people from being actively involved in civic affairs. For miners' wives the baby health centre added another layer of social bonds to an already tight-knit community. The centre opened in February 1927, thanks to the enthusiasm of the Ladies' Committee who raised the entire sum of £355 (half that paid by the working-class inhabitants of Fitzroy in Melbourne for their new centre, built in brick, that opened in 1928 to replace the old room in the Town Hall). Wonthaggi was the first municipality in Victoria to put up its own building before infant welfare work began.\textsuperscript{21}

By the 1933 census, the town housed 5593 people, with an average of 4.3

\textsuperscript{20} Davison, in Davison, Dunstan and McConville (eds), \textit{The Outcasts of Melbourne}, p.21

\textsuperscript{21} VBHCA, Executive Council, \textit{Minutes}, 29 Mar 1927; Town Clerk, Wonthaggi, to Secretary, Ladies' Committee, 1 Apr 1930. On public life and community in Wonthaggi, see Peter Cochrane, 'The Wonthaggi Coal Strike, 1934', in Mackinolt (ed), \textit{The Wasted Years?}, p.77
in a cottage. Although situated in Gippsland, a farming district with the lowest infant mortality rates in Victoria, Wonthaggi's infant mortality rate routinely exceeded the Victorian standard. During 1914-20 the average infant mortality rate in Gippsland was reported as 50 deaths per 1000 live births when the state average stood at 69. Wonthaggi's infant mortality rate was 64 in 1923-7 when Victoria recorded 59, and 54 compared with 48 for the state as a whole for the five years 1928-32. The analysis that follows is of baby deaths recorded in the annual reports of Wonthaggi's infant welfare sister, who until 1941 was Sister Annie Bath. These extant reports are possibly unique in Victoria because a complete set has survived. They illuminate the relative influence of infant welfare work and home conditions on the mortality rate of babies who came within the ambit of infant welfare, because the babies whose details were recorded attended the baby health centre at least once in their brief lives.

In 1928, the first full year for which there are reports, ten babies died in Wonthaggi before their first birthday, producing an infant mortality rate of 65, higher than Melbourne (57 that year), while the rate for Gippsland was 47. Of the ten who succumbed to the hazards of infancy, eight had visited the baby health centre, of whom six fell victim to summer diarrhoea. (The other two deaths were listed as due to osteomyelitis following injury to the ankle bone, which might now be suspected as a case of child abuse, and as 'unknown', in the case of an artificially fed, listless baby taken to the Children's Hospital in Melbourne by her mother without consulting Sister Bath).

Baby Adam was the first of the diarrhoea babies to die, in January 1928,

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23 In 1940 she was appointed sister-in-charge at Geelong; List of Applicants ... Baby Health Centre ..., Baby Welfare, 1935-43, Geelong
aged four and a half months. He saw Sister Bath twice at the new centre, the previous October and November, when he was doing well. Adam was breast fed until 19 days before he died, when his mother developed cracked nipples and on 10 January, desperate to relieve the discomfort, gave the baby complementary feeds of Lactogen 'on her own'. Four days later, on 14 January, she took him to the doctor with loose motions. On 19 January the doctor ordered Adam into hospital, where he died after ten days, of 'ileo-colicis', followed by convulsions and the secondary infections of bronchitis and meningitis. Sister Bath thought his 'home conditions bad'. On 23 February baby Margaret, second on the list, aged nine months, collapsed and died of heart failure following 'ileo-colicis'. A 'small pale baby', she was illegitimate, her 'home conditions bad'. Sister Bath had seen her a fortnight earlier when she had already had diarrhoea for a week and was receiving medical treatment. Baby Arthur was the third to die of 'ileo-colicis', on 1 March, at three and a half months. He had been a healthy baby three weeks earlier when he had last visited the centre. His mother, who had brought him five times to be weighed, had learnt at the centre how to feed him modified cows' milk (boiled) and to care for feeding bottles. His home conditions were described as 'fair'. The only child not to see the doctor, George, who died at ten weeks old on 12 April, was the child of Italian immigrant parents who understood little English. Sister Bath thought his 'home conditions bad' and that he 'looked over-fed' on his diet of cows' milk when she saw him at the centre on the sole occasion that he attended, two weeks before he died from 'gastroenteritis'. Baby Eva died on 28 April, at 14 weeks, also of 'gastroenteritis', after developing diarrhoea while away from home at Warragul. She had last attended the centre on 3 February when she had been gaining 9 1/2 ounces a week. Breast fed for 12 weeks, her
mother had weaned her onto Glaxo on her own. Eva's home conditions too were 'bad'.

Clearly, summer diarrhoea was prevalent in Wonthaggi in the summer and autumn of 1928, its incidence seasonal between January and April in the classic pattern. Clearly it was a disease of the bottle fed, characterised by sudden onset after weaning, striking babies within days of being introduced to cows' milk, or manufactured weaning food, Glaxo or Lactogen. The illegitimate child was described as pale and under-weight for age, the Italian child 'over-fed', and the others were apparently healthy babies until exposed to microorganisms and deprived of the immunity to infection that breast milk conferred. The two diagnoses of 'ileo-colitis' and 'gastroenteritis' suggest that there might have been more than one pathogen, as discussed in Chapter 3. All that we can conclude confidently from the given details is that the babies succumbed to gut infections after weaning, and that the impact was swift. But bottle feeding does not sufficiently explain why these babies, like the babies surveyed earlier in the century, died of summer diarrhoea.

All down the list, the sister cited 'bad home conditions', as if the words were synonymous with deprivation. She did not specify what they meant. Since details of crowding, the quality of food storage and food hygiene in the homes of the infants were not divulged, we are unable to explore the possibilities for transmission by faeces through the known avenues of artificial formulae mixed with contaminated water in contaminated bottles, of dirty milk, flies or by contact with other people in the house; nor are we told of anxiety and loss of hope, which can bring on diarrhoea in adults and might burden an infant deprived of breast milk and the associated comfort. Possibly all of these influences were subsumed under the sister's shorthand

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24 Wonthaggi Centre, Borough of Wonthaggi, Nurse's Annual Reports, 1927-8, 1928-9
of bad home conditions.

Dirty, shabby, congested homes, distressed mothers and inadequate weanling diet were, and are, outcomes of low life energy that renders the body vulnerable to infections. Yet in the babies who were healthy before their final bout of diarrhoea, two of whom, Adam and Eva, were breast fed for at least three months, increased - and abrupt - exposure probably played a greater role than lowered resistance. On the other hand the sole baby registered as having died from gastroenteritis in 1929, Bernard, who died in February aged four weeks, had no resistance; he had been carried by his mother to the centre three days before, 'small, pale [and] sick looking' on the advice of the doctor to obtain instruction on feeding, having contracted diarrhoea after both mother and baby had haemorrhaged at his birth. This left both weak and the mother without breast milk for her baby, and Bernard had been sick ever since. Sister Bath said nothing about his home background; possibly this was because she perceived his problems as being related to delivery, or because she had seen mother and baby only once at the centre.25

In formulating conclusions from a conundrum involving multiple variables, some recorded, many unknown, the historian is alerted to the problem of bias in the sources. The centre reports, inevitably, express the nurse's attitudes. In the case of Sister Bath, it behoves us to consider what she intended by 'bad home conditions', since her description of the illegitimate baby as small and pale and the Italian child as fat could refer to their nutritional states or to stereotypes of illegitimate and immigrant children. There is some hint of a stereotype at work, in that the sister disapproved of George's being a 'large baby' which suggests that she had in mind an ideal type, an average, rosy-cheeked infant, an ideal which

25Wonthaggi Centre, Nurse's Annual Report, 1928-9
Margaret, though she was fed 'baby diet [number] 1' by her unmarried mother to the centre's prescription, also failed to satisfy.\textsuperscript{26}

On balance, Sister Bath at Wonthaggi was remarkable and her testimony the more reliable for her restraint in judging maternal capacity. Not once did she voice an explicit social judgment about a mother where home conditions were 'bad'. She wrote positive comments only to defend diligent mothers who lost their babies, repeating: 'Mother very careful as to baby's welfare', 'mother most careful and capable'.\textsuperscript{27} That she felt obliged to defend them shows the strength of the doctrine of maternal culpability and ignorance. Sister E. Murdoch of Bendigo, on the other hand (for whom Bath relieved early in 1927, before she was appointed to Wonthaggi), condemned one woman as a 'careless type of mother' although she had attended the centre 24 times with her son, who died, at nine months, of 'gastroenteritis' in March 1928; another as 'over-anxious' who had changed her daughter's food, resulting in mild attacks of diarrhoea (the baby died, aged four months, four days after being switched to dried milk, in May 1928); and another as a 'very incapable mother' who brought her 11 month old daughter to the centre exhausted by vomiting and diarrhoea the day before she died. In all of these instances the babies' home conditions were bad.\textsuperscript{28} It is noteworthy that whenever the baby of a 'good' mother died, it was of a respiratory ailment. The sole exceptions to this pattern were two Bendigo infants born to 'careful' mothers who themselves fell 'very ill'; one woman died of tuberculosis some months before her son, after repeated vomiting, succumbed to 'marasmus' and heart failure, while the other infant died of 'gastroenteritis' when her mother was in hospital.\textsuperscript{29} Thus, if Sister

\textsuperscript{26}Wonthaggi Centre, \textit{Nurse's Annual Report}, 1928-9
\textsuperscript{27}Ibid., 1936-7, also North Wonthaggi Centre, \textit{Nurse's Annual Report}, 1934-5, 1936-7
\textsuperscript{28}Bendigo Centre, \textit{Nurse's Annual Report}; 1927-8; \textit{5th Annual Report of Bendigo Baby Health Centre, Y/E Jun 1926}, Bendigo Box 1
\textsuperscript{29}Bendigo Centre, \textit{Nurse's Annual Report}; 1927-8
Murdoch's judgments of maternal incompetence are placed alongside Sister Bath's strivings to absolve mothers, a pattern forms whereby 'good' mothers' babies in general died of respiratory diseases and 'bad' mothers' babies of diarrhoea; the sisters' biases, when pieced together, suggest that diarrhoeal victims were deprived.

Mothers knew enough about health, however, to consult the doctor of their own accord, except where language proved an initial impediment for the Italian mother. Every baby who died in Wonthaggi between 1927 and 1936, other than George, had been seen by a doctor. The visit might have reassured the mother, but the treatment recommended seems to have been ineffectual in reducing the toll of preventable deaths. After five days under medical care, baby Adam was admitted to the Wonthaggi District Hospital where ten more days of treatment failed. May's case offers circumstantial evidence that therapeutics had changed little since 1900. She last attended the centre in October 1928, at age 12 months, ill with diarrhoea, whereupon the sister referred her to the doctor. After some improvement over three weeks the child developed severe stomatitis. Her teeth fell out, her hands grew red and her nails ulcerated; she was miserable and restless. In December her mother took her to the Melbourne Children's Hospital, where she was diagnosed as having Pink Disease, a form of mercury poisoning.30 This could have been caused, given the chronology of her illness, by mercury administered in medical treatment for the diarrhoea; hydrargyrum (mercury) perchloride, a deadly poison, was commonly used earlier in the century to treat diarrhoea babies.31 Today, infants as sick as these, treated by

30Wonthaggi Centre, Nurse's Annual Report, 1928-9
31Black's Medical Dictionary, 34th ed, pp.330, 594. Dr W.G. Cuscaden, President of the Victorian Baby Health Centres Association from 1923 to 1932, prescribed perchloride of mercury in many cases while Litchfield was an enthusiast. Dr W. Macansh of Melbourne reported that he had had his faith 'rather damped owing to its causing symptoms of irritation and congestion about the orifice of the gullet, and a difficulty in swallowing' - symptoms, we now know, of mercury poisoning. Macansh and Cuscaden, discussion, AMG, 20 May 1901, p.188; Litchfield, 'Prevention and Treatment', TAMC, 1914, p.524 and AMG, 28 Mar
rehydration with a salt and sugar solution of two to three litres a day, are sure to recover even from the violent diarrhoea associated with cholera.32

The reality was complicated. Sometimes diarrhoea impaired resistance to the common respiratory diseases of childhood, as suggested in Chapter 3. Baby Emily, from Bendigo, was a victim in April 1928 of diphtheria following 'ulcerative stomatitis', and had attended the centre a few weeks before her death sick with diarrhoea, while baby John of Wonthaggi died at ten months of bronchial pneumonia in the spring of 1934, weakened by a diarrhoeal attack the previous April. Frequently babies suffered several attacks before the bout that killed them, confirming Powles's hypothesis developed from Third World studies; Betty, dead at four months of 'gastroenteritis', had attended the Bendigo centre nine times and defeated a mild case of diarrhoea a month before.33 Multiple causes and recurrent infections demonstrate that the number of deaths officially attributed to diarrhoea understated the full contribution of diarrhoeal disease to infant mortality.

Summer diarrhoea continued to strike with fluctuating virulence into the Depression; the summer of 1930-1 saw another epidemic in Wonthaggi, though much diminished from 1927-8. This time, attacks were severe but not fatal. This summer and autumn also appeared to be more hazardous for babies in Melbourne. The City of Melbourne reported 17 infant enterocolitis deaths in 1930, falling to three in 1931. Of the 16 babies whose deaths were investigated, all were artificially fed; six were sustained by condensed milk (three with biscuits), two were fed on milk 'said to be boiled', four on

1914, p.271
32We can now predict that babies who survive the first five days of illness will recover from cholera; Dr Zia Ahmed, Department of Microbiology, University of Adelaide, 10 May 1986. Dr Ahmed is working on a dysentery vaccine in Bangladesh. Information on oral rehydration solution is from Dr Lado Ruzicka, interview, ANU, 22 Aug 1985
33Bendigo Centre, Nurse's Annual Report, 1927-8; Wonthaggi Centre, Nurse's Annual Report, 1934-5
unboiled milk, three on dried milk, and one 'given indiscriminate "tastes" of all sorts of things.' Artificial feeding, as in Wonthaggi, proved a truth, but not the whole truth. The children who died did not attend a baby health centre, or attended irregularly because their home conditions would not permit otherwise; they belonged to the ranks of the casual poor, those unrespectables ever on the move in search of work, evading arrears of rent or evicted.

In Sydney, 1929-30 proved a worse summer than 1930-1. Dr Margaret Harper described the outbreaks in both years in the *Medical Journal*. Her findings tell too of deprivation. First, Harper confined her analysis to babies in the large public hospitals, the Royal Alexandra Hospital for Children and the Renwick Hospital for Infants, which she was justified in doing because epidemic diarrhoea was rarely seen 'except in the hospital class of patient'; second, she mapped the distribution of infants admitted dehydrated and vomiting and found that the majority dwelt in the back-to-back terrace houses in the working-class suburbs of Redfern, Newtown and Leichhardt, and that another comparatively large group came from Auburn and Granville, further west. 'If any conclusion may be drawn from this distribution of cases', she wrote, 'it is that epidemic diarrhoea takes the greatest hold on the poorest elements of the population...'. She blamed the poor's neglect of 'clean, orderly habits', although she acknowledged these were 'difficult to maintain' in slum housing. Approximately two-thirds of a sample of babies admitted to the hospitals (100 of 161) were badly nourished; of these 20 died, a proportion of one in five, more than double the ratio registered among well fed infants, among whom one in 12 died - five of 59

35 Ibid.; the lives of the casual poor are illuminated in McCalman, *Struggletown*, p.23
36 Margaret Harper, 'Gastro-Enteritis or Epidemic Diarrhoea: A Review of an Epidemic', *MJA*, 16 Apr 1932, pp.538-43
well nourished babies.\textsuperscript{37}

The different seasonal patterns of summer diarrhoea in 1929-30 and 1930-1 in metropolis and country raise questions about factors that might explain short-term fluctuations around the underlying trend. In particular it suggests the possible importance of flies as vectors. The fly population, in addition to its impact in individual years, could have contributed to the underlying trend in infant mortality. In the long term, as from summer to summer, fewer flies reduced the risks of infection that confronted the artificially fed baby. Their numbers diminished as their habitat was reduced with the gradual disappearance of horses and stables from urban areas.

The evidence that Harper collated on the epidemics in Sydney in 1928-9, 1929-30 and 1930-1 supports this fly hypothesis. It is also consistent with Buchanan's argument that a fly explosion contributed to the epidemics of diarrhoea among babies in the hot summers of the 1890s in coal mining communities in England.\textsuperscript{38} Harper observed that, as in the 1890s, the annual summer epidemic reached its peak before the temperature began to drop and that the inverse association between the diarrhoeal mortality curve and rainfall was 'not very marked'. The government meteorologist in Sydney signalled the possible importance of the hours of bright sunshine and number of days of rain, which could explain how flies were a crucial link between the weather and infant mortality rates. Harper herself thought it 'possible that these two points may have an influence on the prevalence of flies and thus have influenced the course of the epidemic of 1930-1931 to some extent'.\textsuperscript{39} In Sydney in the summer of 1929-30 the hours of bright sunshine were more numerous than in 1930-1, and the spring of 1929, notably the month of October, was wet. It is possible that this produced ideal

\textsuperscript{37}Harper, 'Gastro-Enteritis or Epidemic Diarrhoea', pp.540-1
\textsuperscript{38}Buchanan, 'Infant Feeding, Sanitation and Diarrhoea in Colliery Communities, 1880-1911', in Oddy and Miller (eds), \textit{Diet and Health in Modern Britain}, pp.148-77
\textsuperscript{39}Harper, 'Gastro-Enteritis or Epidemic Diarrhoea', pp.538-9
breeding conditions for the fly, considering that the house fly lays its eggs in manure or in moist, fermenting vegetable matter, that the pupa becomes a fly from within a few days to four weeks and that the female can produce over half a million progeny within her three months' life span. The chronology of the 439 admissions that summer to the Royal Alexandra Hospital for Children supports this hypothesis; the number of babies admitted rose in November, leapt in December, peaked in January 1930, and remained high in January and February. The total deaths (128, compared with 40 in 1928-9 and 39 in 1930-1) followed a parallel course. If this speculation is correct, then flies were more prevalent in Sydney in 1929-30 than in the preceding and subsequent summers, resulting in a worse epidemic. By the same logic, Wonthaggi could have endured more of a fly problem in 1930-1. Unfortunately the weather details are not to hand to enable a comparative analysis. I have already mentioned how flies posed the greatest danger in poor homes, where babies and food were unprotected by screens.

Morbidity better indicated the pattern of diarrhoeal diseases as the infant death rate waned. In the summer and autumn of 1927-8, 24 of 164 infants under one year, or 15 per cent of those attending the Wonthaggi centre, and another two children aged 12-24 months, fell ill with infant diarrhoea, of whom ten were prostrated by acute attacks recorded by the nurse as 'needing continued medical attention'. Again, the sufferers clustered in the dangerous weanling period; even the two one-year-old children who suffered mild attacks could have been in this category, as Wonthaggi mothers sometimes breast fed beyond nine months. If we

40 Harper, 'Gastro-Enteritis or Epidemic Diarrhoea', p.539; on the life cycle of the fly, see Black's Medical Dictionary, p.486
41 Wonthaggi Centre, Nurse's Annual Report, 1927-8. The 'weanling period' extends from the introduction of solids until three months after the end of breast feeding. The term was coined to avoid confusion between both meanings of the word 'weaning', David Morley, Paediatric Priorities in the Developing World, London, 1973, p.117
compare these results with the morbidity among babies attending the baby health centre in Bendigo in the same period, we find that of 320 babies under 12 months, 22, or seven per cent, fell sick with infant diarrhoea, half the incidence in Wonthaggi, while a greater number - seven - of one year-olds fell ill. Because the age of infection increases with living standards and with smaller family size, and the probability that a child will die of an intestinal infection is smaller at older ages, these disparities in morbidity rates suggest that, on average, families experienced more concentrated hardship in Wonthaggi than in Bendigo.

Infant diarrhoea appeared in epidemic proportions in Wonthaggi for the last time in 1933-4, with double the incidence of 1930-1, especially among infants aged 9-11 months - though no babies died. The Wonthaggi coal strike of 1934 lasted five months. This was a possible contributing factor to the sickness rate, because it began in March and diarrhoeal cases tended to cluster about the same time. This association, however, was probably weak at best as food relief was well organised, and in the summer following the strike, only six babies, compared with 23 in 1933-4, suffered a bout of diarrhoea. There are other, longer term indicators of a relationship between deprivation and death rates, one being the recurrence of infant mortality in families; George's sister Lucy died at one year, of broncho-pneumonia, in 1933. The evidence is strong from the Wonthaggi case study that deprived babies suffered most from diarrhoeal diseases.

Wonthaggi illustrates, too, the remarkable subsidence in infant diarrhoea. After 1936 Sister Bath reported no severe attacks needing continued medical treatment. The last, in 1936, had been in a one-year-old child. (Subsequent bouts were listed as 'simple', 'responding at once to

42Bendigo Centre, Nurse's Annual Report and Monthly Reports; Gordon, Health, Sickness, and Society, p.192
43Wonthaggi Centre, Nurse's Annual Reports, 1933-4, 1934-5; on the strike, see Cochrane, 'The Wonthaggi Coal Strike, 1934', in Mackinolty (ed), The Wasted Years?, pp.79-84
dietetic treatment'.) Babies who died between one and 12 months from the mid-1930s succumbed to the respiratory infections, pneumonia, bronchitis and croup, confirming the impressions conveyed by the national average statistics.\textsuperscript{44} This fall was coincident with the work at the centre. It is difficult to conclude, however, that the advice given by the sister on feeding and the care of milk and feeding bottles was the reason. Undoubtedly she gave good advice. The centre's success was by definition not measured in mortality statistics, but in the numbers of healthy babies who left no individual record; and it is reasonable to infer that infant welfare work reinforced the infant death rate's downward trend. Yet this influence should not be exaggerated in the lives of the healthy, as of the dead.

**MOTHERS' PRACTICES**

Falling fertility and infant mortality signalled changing maternal behaviour. An historian confronted by the recent sociological and social historical literature of theories of child and mother, that review the regimens from Locke to Spock, to Bowlby's maternal deprivation in the 1950s, would do well to heed Jay Mechling: that advice to mothers should not be used as evidence of how mothers behaved, indeed, that manuals 'neither cause nor reflect childrearing behaviour', but are illustrative of the values of the writers.\textsuperscript{45} Denise Riley recommends that the historian study 'gaps', among other things, between social policy and social practices, propaganda and people's behaviour, and policies, their enactment and people's acceptance.\textsuperscript{46} Christina Hardyment acknowledges that the manuals cannot be equated with how people raised their children, but heeds the medical profession's assertion that artificial feeding was fashionable,

\textsuperscript{44} Wonthaggi Centre, *Nurse's Annual Reports*, 1927-1941
\textsuperscript{45} Jay E. Mechling, 'Advice to Historians on Advice to Mothers', *Journal of Social History*, vol 9, no 1, Fall 1975, pp.47, 51, 53
without examining what happened to mothers.47 Writers of histories of prescriptive ideologies confuse the reader because they do not distinguish between prescription and practice and the chronologies of change that these followed. Writing of the English, Ann Dally asserts that breast feeding was unfashionable in the 1920s, which she describes as 'the age of Truby King'.48 Conversely, Hardyment contends: 'Breast-feeding failed to recover from the many-sided attacks upon it until the crusade led by Truby King in the 1920s', and impugns Pritchard for helping to make breast feeding unfashionable.49 Neither of these writers clarifies whether 'unfashionable' refers to the literature or to reality. I have already shown that both Truby King and Pritchard advocated breast feeding. Hardyment asserts that war and depression '... left parents as resigned to following bulletins of approved infant-care practice as they were to coping with ration books and national service', but she cites no evidence to support this claim.50

We need to ascertain what mothers were doing. Of authors who have interviewed mothers, Apple and Reiger find that prescriptions broadly represent practices, though the latter allows for some 'negotiation' on the mothers' part.51 Yet Mrs Marie Penhaligon, whose first baby was born in Sydney in 1947, insists that 'ordinary working people didn't read newspapers and magazines.' Married to a soldier who set up in business as a livestock carrier in Sydney's west, she describes herself as a 'typical working-class mother'.52 Mrs Olive Lowe, married to a railwayman in a New South Wales country town, agreed; books and magazines were not available to her; and she did not read them. Two more affluent women, on the other hand,

47Hardyment, Dream Babies, p.xii
49Hardyment, Dream Babies, p.95
50Ibid., p.159
51Apple, Mothers and Medicine, pp.138, 152; Reiger, Disenchantment of the Home, p.151
52Marie Penhaligon, conversation, ANU, 10 Jun 1988
whose husbands were RAAF instructors in the war, read the clinic manual and childrearing articles in women's magazines, one in particular Mary Truby King's articles in the Women's Weekly. In their world, friends and family read books, magazines and newspapers. This was not so in Mrs Penhaligon's world where the struggle for money did not allow for such luxuries.

A sensible procedure for the curious is to ask women what happened to them and what they thought about it. Wonthaggi seemed a good place to start; it experienced above average infant mortality, was solid working-class, proud of its infant welfare centre, and it had produced case studies that showed a tremendous reduction in diarrhoeal mortality in the inter-war years. I talked with 13 Wonthaggi women in their eighties and nineties. Typically of the period, they had attended school until age 14, or nearly 14 (one, a nurse, until age 15). Two, in their nineties, had completed their childbearing before the arrival of Sister Annie Bath; both restricted their families, one having one child and the other two children. One, Mrs Connelly, the wife of a miner at nearby Korumburra, where conditions were worse than in Wonthaggi, had a couple of childrearing books but, unimpressed, could not remember what they were, while the remainder read nothing.

Four had attended the baby health centre. Of the women who attended, two were married to miners, one to a mine weighman and one to an engine driver in the mines. According to the hierarchies of status that characterised mining communities, these women's husbands belonged to the aristocracy of labour, and the women enjoyed higher status in the surrounding district than the wives of casual labourers, of railway workers,

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53 Olive Lowe, Yvonne Tierney, Heather Beresford, questionnaires, 1988
54 Interviews, Wonthaggi, 16 May 1986. The nurse considered that she did not need to read books as she was trained. Conditions at Korumburra are described in Lowenstein, Weevils in the Flour, pp.375-81
farm workers and council labourers on sustenance. These families owned ice chests, signs, in a working-class town, of reasonable wages. Ice from the ice man cost 6d a block, three times a week. One mother, Mrs M.I. Philp, had been a nurse before her marriage, and as such embraced the infant welfare movement's regimes. She faithfully followed Sister Bath's instructions, weaning her five children on to diluted cows' milk at 7-8 months. She welcomed four-hourly feeding with no feed at night, believing that 'regularity is a great thing'. Mrs Philp alone challenged her mother's belief in feeding the baby when it cried; her mother thought it 'strange' that she followed the sister's advice, but eventually came to agree with her daughter, after the Second World War, that regularity ensured less worry and that children were disciplined. Mrs Philp held out her babies over the pot, while her twins, the youngest of the family, born in the 1940s, had commode chairs of the design advocated by Dr Vera Scantlebury Brown; she did not have the washing that her neighbours had. Other centre mothers without Mrs Philp's professional training shared her concern to inculcate respectability, regularity and character. But they listened to their mothers, and in the end, like Mrs Philp, used their own discretion.

Mrs G.H., whose eldest child, in a family of three, was born in 1930, had emigrated from Scotland in the 1920s; her mother, a midwife, emigrated too. Although she listened to the sister about four-hourly feeding and toilet trained her three children early, she heeded her mother's advice that all babies were different, practising a flexible routine. Mrs Connelly, who had three children, 13-14 months apart, and whose mother had five children, likewise combined her mother's and the sister's advice on feeding; she

55 Morris, questionnaire. Names are given to mothers who provided them; initials are used to preserve the privacy of those who wished to remain anonymous.
56 Another mother interviewed, Mrs C., was a trained nurse who emigrated from England in the late 1940s. Widowed young, she returned to nursing to support herself and her daughter. She too advocated regularity, describing herself at the time as a 'martinette', Mrs Philp and Mrs C., interviews, Wonthaggi, 16 May 1986
breast fed for 12 months (two for 15 months) but fed regularly, weaning the
children on to Nestle's milk foods, resorting to condensed milk if she ran
short. Principally, she took her babies to the centre to be weighed. Mrs
Connelly was unusual in having an independent income, made possible by
her independent thought; she 'made a lot of money' from her love of
music. A pianist, she had her own five-piece orchestra in Wonthaggi,
playing three nights a week before and after her marriage. She was proud
that she did not drink, especially in the company of musicians. Mrs Kit B.'s
only daughter was born, after 17 years of marriage, in 1945. In her mother's
absence, she too used her own judgment, not following the sister's advice to
persevere when test feeds at the clinic revealed that her baby was 'not getting
anything'; instead she weaned her on to Lactogen as advised by the doctor,
and fed on demand though she was 'supposed' to feed four-hourly,
receiving good advice from a neighbour in the next street. Even in the clinic
era, these 'good' mothers practised demand or modified demand feeding.57

The mothers who did not attend fed on demand from six to 18 months.
All tried to breast feed, and felt no guilt if they could not. If the baby cried,
they picked it up and fed it if they interpreted the cry as hunger; parents, Mrs
G. said in a no-nonsense tone (she had seven children, two born in
Scotland) 'couldn't go to sleep with the baby crying'.58 Denied a widow's
pension because she bought a £35 block of land with her husband's
compensation awarded when he was killed on the railways, Mrs Edwards
demand fed her five children, born at Wonthaggi, Korumburra and Sea
Lake, in the Mallee, until they were 18 months old, when she weaned them
on to cows' milk hot from the cow. With pride, she 'fill[ed] them till

57Interviews, Wonthaggi, 16 May 1986
58Mrs G.'s husband was a returned soldier who, finding no work in Scotland, emigrated to
Australia in 1922. The family lived on a block at Kongwak, about nine miles from Wonthaggi.
They found it a struggle; if Mr G. had seen the farm, 'he would not have come'. Mrs G. had to
become a farm worker too, digging tussock; but the 'children thrived'. Interview with Mrs G.,
Wonthaggi, 16 May 1986
overflowing'. The baby's cot was always in her room and the baby in her bed mostly; if it woke up for a drink she 'wouldn't bother to put it back'. She had no one to consult, taught herself, had no radio and 'didn't read a thing'. For Mrs D., a miner's wife who limited her family to two children, born in the late 1920s, feeding was more difficult; she artificially fed her babies because of her own poor health. She tried cows' milk with her daughter, as a result of which the infant nearly died from 'marasmus' [wasting] at three to four months, but recovered because the Wonthaggi Hospital staff found that the baby could keep down lamb's broth. Although married to a miner, Mrs D. appeared to be worse off than some mothers in the town because, like Melbourne's Richmond mothers, she used a kerosene tin arranged on four bricks to wash the baby's clothes. Deterred by her experience with liquid milk, Mrs D. fed her children the popular alternatives of Lactogen and Nestle's milk.59 Her case confirms that beyond the farm gate, cows' milk was hazardous, that mothers realised this or learnt for themselves and unless the family had their own cow, boiled the milk, diluted with water, or used Lactogen or Nestle's milk.

In 1941 Sister Doris Hamilton, an admirer of Truby King, but not his feeding methods, came to Wonthaggi. On her retirement in 1956 she remembered that mothers had not been obliged to switch from the 'old routine' of four-hourly feeding because she had seized on a modified form of demand feeding during her early training as best for mother and child.60 It is true that Freud entered the creed of Truby King's rivals and successors from the 1930s, assisted by the demographic transition and more immediately by Nazism that exported psychoanalysis with the psychoanalysts, Sigmund and Anna Freud, to England and the United

59 Interviews, Wonthaggi
60 Wonthaggi Express, 28 Mar 1956, Press Clippings, Box 1, Doris Hamilton Papers, Melbourne University Archives
States. 'Permissive' scheduling by 1941 was preached in the most advanced child training literature. But it must be remembered that Wonthaggi's mothers could not be bothered or were too busy to read books. Wonthaggi's babies largely escaped the era of rigid regimens because their practical mothers opted for flexibility, encouraged by grandmother if she lived nearby, but always with the outcome decided by mother and baby. In practice, long before Sister Hamilton's arrival, the flexible regularity resorted to by Wonthaggi's baby health centre mothers approximated modified demand feeding, practised by mothers who did not attend, because babies tend to put themselves on a regular schedule.

Wonthaggi's mothers expressed a relaxed, 'natural' attitude to mothering, in potty training, as in feeding. Most encouraged their offspring out of nappies at toddler age, when they were running about; usually the babies decided the timing. That children 'grew out of nappies' when they walked is mirrored in the women's united insistence that I say toilet, not potty, training. For most mothers the word 'dummy' prompted a response of 'Definitely'. Again the babies' preferences ruled whether and how long the dummy survived, was chewed beyond redemption or given to the dog. Only Mrs Philp, the nurse, abhorred the word, and the practice.

Although relaxed, these mothers displayed a careful attention to detail where they believed it mattered. They were scrupulous about cleanliness,

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61 The infant welfare syllabus was already influenced by J.B. Watson's behaviourism and by Arnold Gesell's plotting of child development norms (milestones) in the United States, as well as by kindergarten and nursery school theories derived from Montessori and Froebel, developed in England by Susan Isaacs. The Australian Mothercraft Book, published by the Mothers and Babies' Health Association in 1938, is a South Australian example of a child psychology manual: chapters were serialised in the magazine Housewife in 1941. Advertiser, 28 Feb 1938; 'Your Children. The Psychological Management of the Child', Housewife, Nov/Dec 1941, SRG 199/16. Child development and psychology are discussed in chap 9.

about boiling milk unless it was hot from the cow, and boiling water for the cows' milk or weaning food, and about keeping milk cool in a Coolgardie safe. Their care is illustrated by their washing ritual. The majority used a copper, and a trough for soaking nappies. One preferred to boil the baby's clothing in a jam pan on the stove. All stressed that they washed the baby's clothes separately, using Velvet soap, boiling them up every day.

Mrs Edwards reduced the issues to their essentials. She described herself as 'finicky', but regarded childrearing as 'no trouble'. 'Finicky' is a self-deprecating word meaning over-particular, precise, fastidious; if we remove this self-dismissal, there remains a description of the care and value accorded to children, that proved fundamental to their improving life chances. As Eva, whose husband was in the Melbourne boot trade, said testily, not disclosing her married name lest she be denigrated as a bad mother for not attending her local centre, she brought her children up 'like everyone else - properly', with a 'good education'. Unwittingly, in demonstrating the mothers' conscientiousness, she revealed that schooling offered a way out of the working classes for the respectable.

Whether or not they had ready access to their mothers and mothers-in-law and whether or not they were isolated on a soldier settlement block or had neighbours and friends close by, Wonthaggi's mothers exercised autonomy. The better off who strove to preserve their respectability and standards of order frequented the baby health centre. But it is apparent also that those who had limited their families were more likely to attend. These coal-mining families were already contracepting; their fertility transition dates at least from the 1920s and 1930s, coincident with the disappearance of diarrhoea as a killer.

63 Mrs Edwards, interview, Wonthaggi, 16 May 1986
64 Eva, interview, Wonthaggi, 16 May 1986; McCalman, Struggletown, p.75
65 On autonomy, measured by a woman's education and fertility control, see chap 1
When children died of whooping cough and other lurking childhood diseases, moreover, it was not for want of cherishing. Mrs Mannix's sorrow is a reminder. A miner's wife, she had a baby boy in 1924, whom she breast fed every three to four hours of her own accord. The twins followed in 1927. She bottle fed them cows' milk from the dairy, brought to boiling point on the coal stove and diluted with boiled water, fed four-hourly, without advice from the new centre. The children were good, and healthy. Mrs Mannix's twins were such bonny babies that they won prizes three years running in the Wonthaggi baby show, the girl twin for the prettiest baby; and they went on to win a certificate of merit in an Australian competition sponsored by Johnson & Johnson, the manufacturers of talcum powder, soap and baby oil. Mrs Mannix lost the twins first, in the winter of 1931, from whooping cough. The doctor came. They were in hospital for four days. She could not understand why her twins caught whooping cough when the children across the road ran about all day barefooted. The same year, her son died of scarlet fever. Mrs Mannix carries a photograph of her beautiful twins in her purse.66

Mothers interpreted good mothering as having a child 'thrive' and grow to adulthood. All the mothers expressed pride if their children did not fall ill. To describe this attitude as a mere echo of the regimens, which deemed health a reward for obedience, would be to do mothers a disservice. Improved child health was a real success; mothers recognised this, then as now, and more so then when child mortality exacted a greater penalty. The improvements materialised without respect for clockwork or causal notions.

Indeed, practice and prescription exhibit a different chronology. Whereas the ideology of feeding and sleeping by the clock attained its apogee in the 1920s, mothers associate the clinics with the 1930s and 1940s. 'I found

66Mrs Mannix, interview, Wonthaggi Hospital, 16 May 1986
myself in the clinic era', Mrs Noreen Shirt of Lithgow, New South Wales, explains, when sisters 'preached the gospel of strictly four hourly feeds.' Her first baby was born in 1947.67 Mrs Yola Wenholz of Queanbeyan, near Canberra, had four children, the first two in 1938 and 1941, the others 'in the post war years but the system had changed considerably by then'. She too identified the clinic era as beginning in the 1930s.68 Clinic mothers themselves had been among the first to benefit, as babies, from the turnaround in infant deaths.

'Most mothers of my mother's generation weren't very happy about our generation taking the babies to the clinic', Mrs Wenholz observed. 'People did not think much of the clinics', Mrs Eileen Morris added. (She had her first baby in 1941.)69 Mothers did not dispute grandmothers over breast feeding, although they breast fed, if they did not lose their milk, for a shorter time, according to clinic rules, than their mothers who practised demand feeding. Mrs Noreen Shirt's mother breast fed her seven children for about 15 months, like Wonthaggi's mothers, and weaned them onto Benger's Food.70 Mrs Morris's Sydney mother was an exception - she bottle fed her five babies born between 1908 and 1919.71 Many of these young mothers also agreed with their mothers that the baby should sleep with its parents. But they disagreed over timetabling and discipline rules, and in particular over the what, how and when of artificial feeding.

They knew that it was important for their mothers' generation to breast feed because there 'didn't seem to be a good substitute'. Mrs Mary Haverfield of Carramar, New South Wales, recalled seeing her mother, who

67 Noreen Shirt, letter, 1 Jun 1987. On this sample of respondents, see Appendix 7
68 Yola Wenholz, letter, 2 Jun 1987
69 Wenholz, letter, 2 Jun 1987; Morris, questionnaire, Jun 1988
70 Noreen Shirt, letter, 1 Jun 1987
71 She lost a sixth child, her second baby, when she had German measles. Morris, questionnaire, Jun 1988. Dulcie Maidment's mother also bottle fed her babies, born between 1911 and 1925, Maidment, letter, 9 Jun 1987
had six children between 1915 and 1935, and her friends 'sharing their meals with the baby, sitting on their laps', a custom opposed by the centres. The 'babies used to have a gruel made from arrowroot'.72 To infant welfare sisters, condensed milk and arrowroot were accursed things. It was common, even in the 1930s, but more so earlier in the century, for mothers to use Arnott's Milk Arrowroot biscuits, softened in boiling water, with condensed milk added or given by spoon.73 Whereas Mrs Morris's mother fed her first baby - 'a city baby' - arrowroot biscuits by bottle in 1908, an anathema to W.G. Armstrong, Mrs Dulcie Maidment encountered arrowroot as a tot, rather than as a baby, in the Great War, for breakfast, or sometimes for lunch, but more often bread and milk, 'slices of bread cut into cubes, softened with boiling water, drained, then sugar and milk added.' This was not unusual. 'Actually we loved it.'74 Even in Truby King's New Zealand, arrowroot biscuits and condensed milk proved 'quite common ... in depression times'. Families resorted to the mixture when they 'had no money for fancy baby foods', Truby King's Karilac and Kariol among them. The condensed milk was unsweetened.75 Medical systematisers knew that condensed milk was the 'most popular food after breast milk'. No matter how condemned, mothers who could not afford cows' milk and distrusted it used condensed milk because it gave the best results for the lowest cost.76 It kept, it was neat in a tin and everybody likes the taste and texture.

Clinic mothers' mothers had good reason to suspect the baby health centres' instruction to mothers to use liquid milk, especially in poor suburbs. As late as 1933, Dr W.B. Vance, the medical officer of health for St Kilda, Melbourne, complained that a milkman could be charged with

72Mary Haverfield, letter, 1 Jun 1987
73Haverfield, letter, 1 Jun 1987; Mrs D., interview, Wonthaggi, 16 May 1986
74Dulcie Maidment, letter, 9 Jun 1987
75Dot Hitchins interviewed by Barbara Smith, Christchurch, NZ, Jun 1988
76W.F. Litchfield, 'BMA News', MJA, 9 Oct 1915, p.352
carrying water on his cart, but not for milk found laden with bacteria. The council could prosecute for adulteration, but not for filth, because of the absence of a compulsory standard. In Fitzroy, too, in the summer of 1933-4, parents complained to the centre sisters about milk quality. Mrs Morris revealed, of conditions in Sydney: 'My own father caught the milkman at our tap in the garden'. Her son-in-law, Athol Macnab, remembers a ditty from the Depression that discloses the state of the milk supply:

Little drops of water mixed in with the milk,  
Keep the milkman's daughter clad in flowing silk.

Centre mothers rejected their mothers' proprietary and home remedies: the 'sugar tit', sugar wrapped in cloth, given to the baby at night, used earlier in the century; the teaspoon of olive oil warmed in sugared water to promote bowel motions; powders and herbal medicines, mouth swabs with glycerine and honey to prevent thrush, and the weekly tablespoon of castor oil; though the dose of castor oil remained the centres' panacea for routine ailments. The proprietary remedies stopped at the point of take off for the centres, in the Second World War.

Women attended the centre first to check on weight and feeding. Indeed, the centre's ritual revolved around the set of scales. The scales were associated with scientific feeding, gauged by measuring the child. The subsidence of diarrhoea had appeared to be associated with that science, so the scales retained symbolic significance even after diarrhoea had declined, albeit for other reasons. In addition, scales were thought important because

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77 A number of itinerant cream vendors had also appeared, courtesy of a loophole in the Dairy Supervision Act 1928, which did not require them to be registered, Report of MOH, 28 Jan 1933, St Kilda file
78 Fitzroy, Minutes of Committee of Whole Council, 5 Mar 1934, PRO 4544/14
79 Morris, questionnaire
80 Courtesy of Helen Macnab, ANU, Jun 1988
81 Barbara Smith, letter, Jun 1988; Shirt, letter, 1 Jun 1987; Morris, questionnaire
they appeared to foretell the answers to survival of premature, low birth weight infants. Norma Mann of Brisbane, born in 1920, is the child of one mother grateful that she tried Queensland's first baby health centres 'as a last resort' after encountering severe feeding problems. The youngest of seven children, her mother could not feed her. Nothing agreed with her (allergies were unknown). At about three months old, she was taken 'cranky' and 'possibly starving' to the clinic, put on barley water and 'never looked back.' Her 'mother always said that the clinic saved [her] life.'83 In Sydney, 25 years later, Yvonne Tierney left hospital with her first baby on a holiday weekend with 'strict instructions to weigh him before and after the breast at each feed', that is, to test feed, and make up the difference between what he received and was 'supposed to have' with complementary feedings. This required a set of scales. With 'no shop likely to sell scales, baby feeding bottles, teats, or any other such items, open again until 9 a.m. on the Tuesday, by the Sunday afternoon, I was in floods of tears over my "poor, starving baby"'. At the clinic on Tuesday morning, the sister 'snorted' that the hospital's test feeding methods were too tiring for mother and baby, and prescribed what complements to give at each feed, so that Mrs Tierney went home consoled by the practical advice.84

The slogan 'keep the well baby well' posted on centre walls was intended to promote the preventive behaviour of seeking help with problems before the baby became ill. It also served to deter complaints from medical practitioners that babies were treated at the centres. The Victorian Baby Health Centres Association fielded a number of protests from doctors in the 1920s, including heated objections by local medical men about the

83Norma Mann, letter, nd (Jun 1987)
84Yvonne Tierney, questionnaire, Aug 1988. Similarly, Mrs Morris tried the centre in 1942 when her son at four months weighed ten pounds and screamed on feeding, and found after a test feed that she was 'starving the babe - they put him on cow's milk and water', Morris, questionnaire
work of the Camberwell and Oakleigh centres in Melbourne in 1923, while in the town of Maryborough in 1926, the work was going 'very slowly' because of the opposition of the medical profession.\textsuperscript{85}

In practice the doctors were right that mothers took ill babies to the centres. Sometimes the sister proved a first resort, especially if the family could not afford the doctor's fee. (The doctor's private consulting fee was 10s 6d, but this could vary greatly, especially if the family belonged to a friendly society.)\textsuperscript{86} Sister Vera Dobson of the St Kilda Baby Health Centre, opened in 1921 at the St Kilda Town Hall, expressed alarm that mothers bothered to attend only when their babies were sick; when the sister was busy and the baby healthy, they were not prepared to wait in a crowded and noisy centre, to have their infants perform. Sister Muriel Newton of Maryborough reported a 'good deal' of sickness in the summer of 1926-7, mostly diarrhoea, and she too noticed that mothers sought her advice, whereupon she referred them to the general practitioner for treatment. The Victorian Baby Health Centres Association itself took into account mothers' fears in April 1927, advising centres to close only on Christmas Day, Boxing Day and New Year's Day so that mothers could obtain help with the onset of diarrhoea in the hot weather.\textsuperscript{87} In Richmond, 'sisters were often the first to detect serious illness'.\textsuperscript{88} Nurses' own reports specifying cases of infant diarrhoea that responded to dietetic treatment, which they recorded separately from babies seen by a doctor, reveal that they were often the first to see, and to prescribe remedies for infant diarrhoea.

Mothers were grateful to the clinics when their mothers were absent

\textsuperscript{85}VBHCA, Executive Committee, \textit{Minutes}, 30 May 1922, 20 Feb 1923, 10 Apr 1923, 28 Oct 1924, 25 May 1926; also City of Maryborough, \textit{Minutes of BHC Committee}, 7 Dec 1926
\textsuperscript{86}On fees, see T.S. Pensabene, \textit{The Rise of the Medical Practitioner in Victoria}, Canberra, 1980, pp.11, 97
\textsuperscript{87}V.C. Dobson to Chamberlin, Town Clerk, St Kilda, 7 Dec 1925, St Kilda file; Sister Muriel Newton, \textit{Report to Baby Health Centre Committee}, City of Maryborough, \textit{Minutes of BHC Committee}, Jan 1927; Colac Baby Health Centre, \textit{Minute Book}, 5 Apr 1927, SLV MS 8555
\textsuperscript{88}McCalman, \textit{Struggletown}, p.209
and they had noone to ask. Often mothers valued the clockwork routine for
the time that it gave them for work and rest, as Truby King and other infant
health authorities, such as Harper, had intended. Mrs A.I. Smith of
Rivervale, Western Australia, had ten children between 1927 and 1948; she
followed the infant health sister's advice and breast fed every four hours,
from 5.30 a.m. to 9.30 p.m., in a pattern that continued for 21 years. 'The
clock played a big part in [her] day', because as the babies and the years passed
she found that she needed the order provided by a timetable to catch up on
her housework. When 'no help was given, nor expected, from the husband
and father', Mrs Joy Ellerman of Killara, Sydney, whose babies were born in
1944, 1946 and 1948, elaborated, 'strict routine enabled me to plan my day
and run the household with some kind of acceptable pattern'. For
wartime mothers faced with single parenthood, who might hardly know
their husbands and who had to contend with men's mental pain if, and
when, they returned from soldiering, it was a relief when their babies slept
eight hours at night.

New, less confident mothers were more likely to feed four-hourly 'right
on the minute' because they were afraid to question the sister. 'I can
remember waiting and looking at the clock till it was on the hour,
sometimes the baby screaming its head off,' Mrs Wenholz recalled, 'but you
had to stay strictly to time.' She had difficulty waking the second baby for his
10 p.m. feed and asked if she could let him sleep. The sister said 'caustically',
"You have plenty of milk, ... and you intend to deny your baby its food";
you can imagine the result. He always had his 10 p.m.' Others did not
venture this far, because to ask for help was to be regarded as incompetent.

Some who were more self-assured, even if they felt young and unsure of

89Harper spelt out the advantages to the mother as well as the baby's digestive system, in
The Parents' Book, 1926, p.24
90A.I. Smith, letter, 10 Jun 1987; Joy Ellerman, letter, 19 Aug 1987
91Wenholz, letter, 2 Jun 1987, Penhaligon, conversation, 10 Jun 1988
what to do with a first baby, had fewer qualms about adapting the regimens to suit themselves. These mothers were generally better off. Mrs Dulcie Maidment, whose husband, as I remarked earlier, kept his clerical job in the public service in the Depression, accepted the baby health centre's 'advice to feed, bathe, put down to sleep, have a "Mothering Time" (cuddles and petting) regularly' with her 1931, 1934 and 1941 babies, 'because with this regimented programme I knew what I could do when.' She fed by the clock, but adjusted the rules to suit her family, changing the time of the first feed to 7 a.m. since 'I am not by nature an early riser' and it 'fitted in better with family meal times'.

The sisters were particularly helpful for mothers who bottle fed. Mrs Mary Haverfield decided to rear her baby in the 1940s 'exactly as advised by our local clinic which worked out wonderfully well'. She fed her baby Lactogen, four-hourly 'right on the dot'. About seven months, he began to be weaned onto solids: Farex, the popular baby food, twice a day, followed by sieved vegetables with a knob of butter and milk, coddled egg, stewed apple, custard and junket, and orange juice daily, in short, the baby health centres' 'educational diet' that at 12 months prepared the infant for the adult ritual of three meals a day. Many mothers were grateful for this weaning advice. By the 1940s, it was more likely that working-class mothers could afford to carry it out.

Reiger has noted the paradox that the pressure imposed on women to breast feed and the centres' strict schedules could have contributed to bottle feeding. My respondents reinforce this observation. Grandmothers regarded the bottle as an accepted thing, for the ill, the exhausted and for mothers with errant babies, who 'would not take the breast', but by the 1930s

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92Maidment, letter, 9 Jun 1987
93Haverfield, letter, 1 Jun 1987
94Reiger, Disenchantment of the Home, p.143. Also Apple, Mothers and Medicine, pp.159-64
mothers were more anxious about breast feeding and felt guilt if they could not feed the baby themselves. Encouraged by her mother's decision to attend the centre with her 'change of life' baby in 1932, Mrs Eileen Dixon followed the centres' advice with her babies, born in 1942, 1945 and 1946. Like her mother, she breast fed the first child, for ten months, introducing solids, beginning with a teaspoon of Farex in boiled milk, from six months, so that by her first birthday the baby 'was having a little of everything'. But with her second child, who contracted a skin disease in hospital, she lost her milk: 'I remember Fred crying because he was hungry, and me crying because I could not feed him. It was a disgrace not to be able to breast feed one's baby [in] those days."

We may ponder the impact of complementary feeding, that was supposed to maintain a mother's inadequate supply of breast milk, but so readily led to full bottle feeding. Test feeds, combined with the opposition to demand feeding, could have been sabotage. These procedures had their most dire effect on the working-class baby, who was usually smaller and weighed less than the middle-class baby and thus below the average which determined how much extra it received, whether this was the Truby King or Pritchard average, or derived from Australian babies who attended centres from the 1930s. Smaller babies came from poorer families and for that reason were more likely to have an inadequate diet, whether they were breast or bottle fed.

The stories mounted, too, in the 1940s of mothers who could not breast feed because of 'milk fever', or breast abscesses. In 1947, Mrs Noreen Shirt

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95 Interviews, Wonthaggi, 16 May 1986
96 The outbreak closed the hospital. Eileen Dixon, letter, 7 Jun 1987
97 Dr H. Boyd Graham demonstrated the difference in weight and height for age by class, between working-class babies' measurements recorded by Sister Purcell at the VBHCA training school, and 1727 babies seen at baby health centres, 'whose parents were in a position to seek private medical assistance', in Statement of Boyd Graham, Select Committee of the LA on Child Endowment, 2 Aug 1939, Boyd Graham Papers, AMA MS 1822
and Mrs Marie Penhaligon were 'devastated' when they developed abscesses and had to wean their first babies early.\textsuperscript{98} The nurses' advice at the time was to prepare to be natural mothers by scrubbing, the purpose of which was to harden the nipples so that the baby would not hurt the mother and discourage her from breast feeding. By the same logic, if the mother's nipples were sore and cracked, Mary Truby King's \textit{Mothercraft} in 1944 instructed her to paint Friar's Balsam over the cracks, which she removed with methylated spirits after the next feed.\textsuperscript{99} The Balsam 'made me jump and the tears flow', Mrs Parker remembered; 'I thought it was drastic treatment'.\textsuperscript{100} Scrubbing itself could have led to abscesses because the vigour that this required could have caused cracks, and breast abscesses are almost always a complication of cracked nipples.\textsuperscript{101}

In my findings, it remained customary for mothers to listen to their own mothers, when they were accessible for advice. Mothers who had recourse to family help in general have happier memories that issued from happier results. Both mother and clinic were pleased that Mrs Joyce Asmussen, then of Ipswich, Queensland, breast fed her two children, born in 1943 and 1945, her mother because it was economical. She tried the advice of three, then four-hourly feeds, but could not see the sense of having the baby cry itself into an attack of indigestion, so followed her mother and fed on demand, sometimes leaving the baby for more than four hours, 'much to my discomfort'.\textsuperscript{102} It is striking that, whether grateful for advice from the centre with the first child, or deterred by what ensued, mothers often felt quite capable of managing the second, third and fourth on their own.\textsuperscript{103}

\textsuperscript{98}Shirt, letter, 1 Jun 1987; Penhaligon, conversation, 10 Jun 1988
\textsuperscript{99}Mary Truby King, \textit{Mothercraft}, 15th printing, Melbourne & Sydney, 1944, p.83, courtesy of Mrs Regina Davies, Arncliffe, NSW
\textsuperscript{100}Nancy Parker, letter, 9 Jun 1987
\textsuperscript{101}Hugh Jolly, \textit{Book of Child Care}, London, 1975, p.88
\textsuperscript{102}Joyce Asmussen, letter, 27 Jun 1987
\textsuperscript{103}Parker, letter, 9 Jun 1987, Shirt, letter, 1 Jun 1987
Even intimidated mothers were selective about what aspects of the regimens to discard or adopt. Mothers achieved more uniform success with early potty training than with rigid feeding. Some began potty training at two months, according to the literature, read or not, before the baby could sit up; they adapted the holding out ritual to suit themselves, holding the baby over a sheet of paper, or held the baby over the toilet while they sat on the edge of the bath. Amused, they would 'grunt' to the sisters' instructions. But they preferred the special-purpose chairs of the 1940s, containing potties, for the toddler and older baby, once it could sit up. That centre mothers expressed gratitude at not having to wash dirty nappies again suggests the popularity of adhering to schedules in the war. A potty trained child, surely, was an asset in the wartime nappy shortage.104

Dummies were another matter. Dummies revealed disobedience. The sisters were 'dead against dummies' but faced with a colicky baby, Noreen Shirt tried and 'the little terror spat it out at me!' The majority of mothers in this sample of respondents used dummies, but removed them from their babies' mouths when it was their turn to see the nurse.105 The exceptions were the four New Zealand mothers questioned to provide a comparison with Australian practices; three comfortably off mothers, one of whom attended a Truby King centre in Melbourne during the war, who thought that dummies were unhygienic and unnecessary; and one mother 'too scared' to disobey the sister.106 The more confident mothers who favoured comforters chose not to resort to subterfuge, and pushed the pram, containing child with dummy, to see the sister; if they were lucky, her

105 Shirt, letter, 1 Jun 1987, Asmussen, letter, 27 Jun 1987. The sample of respondents is reviewed in Appendix 7
106 Tierney, Beresford, Sutherland, Laughlin, Smith, Hitchins, questionnaires; Passmore, baby record book, 1939 (NSW); Wenholz, letter, 2 Jun 1987
'reaction was Okay, as long as you don't put honey or such on them.' Some gave dummies at night because they were glad to sleep after a heavy day; 'the old dummy was used and I had no trouble breaking him off it.'\textsuperscript{107}

From this written and oral testimony, patterns of difference emerge between city and country mothers and between the less and more comfortable. Country mothers were more easygoing and confident than city mothers about their knowledge of babies. The routines were easier for better off mothers to follow and more relevant to their needs. Experience of condensed milk and biscuits as a weaning food, indeed, could be seen as a divide between the impoverished and the comfortable. Clearly, biscuit feeding was widely practised among the working classes, as nurses found earlier in the century, and in South Melbourne in 1920 and in the City of Melbourne in the Depression.\textsuperscript{108} But better off mothers often 'do not remember ever hearing of condensed milk and biscuits'.\textsuperscript{109} The disappearance of the practice depended on rising living standards.

Ultimately what happened to mothers and what they thought about it depended on who they were, and the nurses who proffered instruction. Both the mothers' responses and the nurses' advice varied with the people concerned, the mothers' behaviour more so, because their education and socio-economic status ranged more widely; the nurses, while from different states and training schools that feuded, shared a bond in their general and infant welfare training. As Mrs Yvonne Tierney recalled, the nurses, 'in the way of most professionals of the day ... were always formal, [as] the idea of the professional working with the client was not yet promulgated', and this could unnerve young mothers.\textsuperscript{110} Some thought the sisters 'proper tyrants'

\textsuperscript{107}Maidment, letter, 9 Jun 1987, Haverfield, letter, 1 Jun 1987
\textsuperscript{109}Margaret Sutton, questionnaire, Aug 1988; Heather Beresford added 'I cannot imagine that [condensed milk] would have been given to us as a food...', questionnaire, Aug 1988
\textsuperscript{110}Tierney, questionnaire
who made them feel as if they were nothing, but other mothers welcomed the outing to the centre, and the sensible humane advice.  

For the proud young mother, the weekly centre visit offered an opportunity to display her pride and joy. In a period when people dressed up in their best to go anywhere, to publicise their 'respectability', poor women might have been deterred by the competition among mothers for the most beautifully dressed baby, because they could not afford proper clothing for themselves and their families. Indeed, it appears that the few tertiary educated women were moving to Dr Spock, or rather, to his predecessors, Dr Susan Isaacs, and in Australia, the child psychologist Zoe Benjamin, in the early 1940s, just as working-class women were encountering the centres' rigid four-hourly routine. This evidence strengthens the argument that practice followed a separate chronology and that the regimens were taken up first by the middle classes.

A minority of mothers shopped around. Mrs Elva Farrell, then of Kingsford, Sydney, had four children in 1938, 1939, 1947 and 1951. She tried the Karitane clinic with the second baby, but still used the ideas of her local clinic sister. More often, Truby King was seen as 'strange - like health food', for being extreme, when in practice the clinics could have used Mary Truby King's *Mothercraft* as a textbook, such were its similarities to their routines.

Retrospectively, some, not all, are sad: Mrs Joyce Ellerman mourns 'a little and wish I had followed my instincts rather than well-meaning advice from those I believed must know more than myself. Certainly my children were much loved and I still remember vividly the joy of feeding them, but there could have been more 'cuddling' (as I understand is approved of in

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111Penhaligon, conversation, 10 Jun 1988; questionnaires and correspondence
113Penhaligon; Elva Farrell, letter, 23 Jun 1987
these days) and less of the 'straight back to the cot after the wind has been brought up'. The nurse's 'string of questions' designed to give the mother confidence could so easily have undermined it. Deacon and Reiger have developed an argument derived from H. Braverman's theory of labour and monopoly capital that the infant welfare movement 'de-skilled' mothers, and there is evidence that potential mothering skills were stifled.

OFFICIAL STATISTICS

In drawing conclusions, some arithmetic is necessary as a check against the mothers' testimony. According to the reported statistics, the total attendances of children at centres more than trebled from 919893 in 1930 to 2927764 in 1945. Inflated by a rising number of individual attendances in a year - the average number had reached eleven in Victoria by 1932 - and by the spread of the movement from the 1930s to children from two to five, these figures are useless for determining the proportions of mothers and babies affected. Nor does the total number of individual children seen at the centres, which also trebled, indicate the proportions reached. A better estimate of the movement's impact can be gauged by measuring the proportion of new babies attending each year as a percentage of the total births in that year, listed for Victorian infants in Table 13. Because the centres operated on the financial year, while the registered birth counts related to the previous calendar year, the percentages in column 3 serve merely as a guide. They suggest that the proportions of new babies, who attended a centre at least once, more than doubled between the late 1920s and the 1940s. The movement spread steadily from 1927, its growth slowed in the Depression by a cut in the state government's subsidy that delayed the opening of new centres. An upsurge in the mid-thirties followed, broken by

114 Ellerman, letter, 19 Aug 1987
115 Deacon, Taylorism in the Home; Reiger, Disenchantment of the Home
116 Commonwealth Year Book, 1953, p.297
the poliomyelitis epidemic. The era of greatest change dated from 1940; by 1945 the movement had become almost universal. It was only after the Depression that the movement in Victoria, the most comprehensive of all the states, reached two-thirds of mothers.

Table 13  
Attendances at Baby Health Centres  
Victoria, 1927-1945

<table>
<thead>
<tr>
<th>Year</th>
<th>Births (prev. year)</th>
<th>New Babies Attending</th>
<th>%</th>
<th>Total Babies and Toddlers at Centres</th>
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<td>1917-18</td>
<td>33033</td>
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<tr>
<td>1927-8</td>
<td>35074</td>
<td>15970</td>
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<td>1928-9</td>
<td>34498</td>
<td>16198</td>
<td>46.9</td>
<td>(b) 30857</td>
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<td>1930-1</td>
<td>33127</td>
<td>18574</td>
<td>56.1</td>
<td></td>
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<td>18293</td>
<td>60.3</td>
<td></td>
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<td>17629</td>
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<td>27828</td>
<td>17436</td>
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<td>19181</td>
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<td>31962</td>
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<td>1941-2</td>
<td>34406</td>
<td>36559</td>
<td>(d)</td>
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<td>35927</td>
<td>33177</td>
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<td>39358</td>
<td>37910</td>
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</table>

(a) 1926-7 (b) 1929-30 (c) poliomyelitis epidemic (d) Reported attendances exceed births in the previous year. This raises a question about whether the departmental figures were reliable. The raw data was sought but not found.

Sources: Vic Dept of Public Health, Reports of the Director of Infant Welfare; Vamplew (ed), Australians: Historical Statistics, p.51

The arguments of infant health leaders support the thesis that the movement's contribution to reduced infant mortality was delayed, because they inculpated mothers who stayed away from the centres for the
diarrhoeal death rate. Diarrhoea, in general, was a disease of non-attenders. Dr Hilda Kincaid was appointed the Medical Officer in Charge of Child Welfare for the City of Melbourne in 1927. In this capacity she succeeded Scantlebury Brown as medical officer to the City's centres. Educated at the Methodist Ladies' College, she fitted the pattern of recruitment to infant welfare from Protestant girls' schools. But Kincaid was exceptional in possessing a Doctor of Science degree as well as her medical qualifications; she had worked as a physiologist at both Sydney and Melbourne universities, experience which informed all her subsequent work with children.117 In 1929 Kincaid calculated that the mortality rate in babies one to 12 months old was six times higher in the 44 per cent who did not attend one of the five city centres. In Sydney, Dr Sydney Morris at the same time reached the same conclusion; in suburbs with centres, about 70 per cent of babies attended by 1929. The other 30 per cent contributed over 80 per cent of the gastroenteritis cases that crowded Sydney hospitals every summer.118

The ratio of diarrhoea rates (non-attenders divided by attenders), calculated from these percentages, is 9 : 1, which means that the diarrhoea attack rate was nine times greater in non-attenders than in babies seen.119 Contemporaries inferred from this that the centres explained the discrepancy. But these figures suggest an alternative view, that the baby health centres before 1930 did not reach that part of the infant population in whom a majority of diarrhoeal disease occurred.

The evidence suggests that until 1930 the proportions of babies breast

117Principal Women of the Empire, 1940, p.68
119Professor John Powles kindly performed this calculation: let total births in suburbs with centres be y; and total cases of diarrhoea among them be x. 'Attenders' then = 0.7y and 'non-attenders' = 0.3y. Cases of diarrhoea in 'attenders' = 0.2x, in 'non-attenders' 0.8x. Diarrhoea rates are: for 'attenders', 0.2x/0.7y; and 'non-attenders', 0.8x/0.3y. Ratio of rates ('non-attenders'/'attenders) = 0.8x/0.3y / 0.2x/0.7y, i.e. 0.56/0.06 = nine times.
fed remained fairly constant, regardless of exhortations. Home visits by the Melbourne City Council's nurse inspector from 1916-26 produced results hardly variant from those claimed for Armstrong's campaign in Sydney from 1904. In 1916, of 2090 babies seen by Melbourne's health visitor 11-12 days after birth, 86 per cent were fully and 92 per cent fully or partly breast fed; in 1920, of 1705 babies visited, the proportions were 92 per cent wholly breast fed and 94 per cent given some breast milk; in 1924, 91 per cent and 94 per cent; and in 1926 92 and 95 per cent wholly and at least partly fed on mothers' milk. The major change proved to be not in breast feeding, but in the number of children visited, which fell to 1294 with the establishment of baby health centres in the city, that supervised infants from age three weeks. Doctors and welfare professionals claimed these results for the women's hospitals, because it is here that mothers first encountered the strict regimes; yet fewer than half of the babies in the City of Melbourne - 46 per cent by 1929 - were born at the Women's Hospital in Carlton or at the Queen Victoria Hospital. The effect of natural feeding campaigns in these large teaching hospitals cannot be substantiated. As late as 1942-3, 95 per cent of babies left the Queen Victoria and Women's Hospitals fully or partially breast fed at ten days of age, no different from the proportions recorded by the Melbourne nurse inspector on her rounds in 1926, while 88-90 per cent were fully breast fed, unchanged from 1919-25 when the proportion ranged from 89-91 per cent. Mothercraft and medicine claimed the credit, but the figures indicate a consistent pattern whereby most mothers tried to breast feed their babies in their first days of life.

A study of the New South Wales baby health centres in 1930 produced

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percentages consistent with these Melbourne findings among the newborn who were yet to visit an infant welfare sister. Again proportions of babies fully or partly breast fed remained at between 93 and 96 per cent in the first month (see Table 14). The biggest increases in weaning were at four and seven months. This suggests that mothers' behaviour was in accord with thinking today, whereby the baby is introduced to solid food at about four months and weaned fully at teething, for very practical reasons, or when the baby loses interest, events which usually coincide. Equivalent statistics are not available for Victoria. We do know, however, that among babies between 3 weeks and 3 months of age attending baby health centres in 1927-8, 85 per cent were fully or partially breast fed, reducing to 72 per cent by 9 months (69 per cent in 1929), figures which are commensurate with those for New South Wales.122

Table 14

<table>
<thead>
<tr>
<th>1st month</th>
<th>2nd month</th>
<th>3rd month</th>
<th>4th month</th>
<th>5th month</th>
<th>6th month</th>
<th>7th month</th>
<th>8th month</th>
<th>9th month</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>93.5</td>
<td>90.6</td>
<td>87.1</td>
<td>82.0</td>
<td>78.5</td>
<td>75.3</td>
<td>71.5</td>
<td>69.6</td>
</tr>
</tbody>
</table>

Source: Report of Director of Maternal and Baby Welfare, 1930, Table III

Comparable local figures exist for working-class babies in central Melbourne. In the first half of 1928 Kincaid plotted the feeding of 450 babies born in the city, whether they attended a centre or not. She found that 93.5 per cent of the babies in her sample were breast fed in the first month of life, 122

122Vic Dept of Public Health, Reports of the Director of Infant Welfare. On New South Wales, see also Lewis, "Populate or Perish", pp.163-4
the same proportion calculated in New South Wales baby health centre babies. In the first four months, however, the decline in breast feeding among the Melbourne infants was more rapid, as shown in Table 15. It is possible that the professed causes, of illness, accident or death of the mother were the dominant difficulties. On the other hand, it must be remembered that poverty compelled, rather than thwarted, breast feeding because it cost nothing and was easier than bottle feeding. Judgments of unsatisfactory motherhood, including Kincaid's categories of the 'young flighty type' who did not heed advice and the grubby 'shiftless type' of irregular habits, still more should be treated with caution because they were coloured by medical bewilderment about what professionals interpreted to be a lack of order in the lives of the itinerant unskilled.123

Table 15 Breast Fed Babies, City of Melbourne, 1928

<table>
<thead>
<tr>
<th></th>
<th>Fully and Partly Breast Fed</th>
<th>Fully Breast Fed</th>
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<tbody>
<tr>
<td></td>
<td>%</td>
<td>%</td>
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<tr>
<td>1st month</td>
<td>93.5</td>
<td>86.7</td>
</tr>
<tr>
<td>2nd month</td>
<td>87.0</td>
<td>78.5</td>
</tr>
<tr>
<td>3rd month</td>
<td>79.0</td>
<td>69.0</td>
</tr>
<tr>
<td>4th month</td>
<td>74.5</td>
<td>61.5</td>
</tr>
<tr>
<td>5th month</td>
<td>72.0</td>
<td>59.0</td>
</tr>
<tr>
<td>6th month</td>
<td>68.0</td>
<td>57.0</td>
</tr>
<tr>
<td>7th month</td>
<td>64.5</td>
<td>55.0</td>
</tr>
<tr>
<td>8th month</td>
<td>63.0</td>
<td>53.0</td>
</tr>
</tbody>
</table>


There is sketchy evidence that mothercraft might have made a difference in South Melbourne, whose Town Hall Centre was the model for the Victorian Baby Health Centre training school until 1928. South

123Kincaid, 'Child Welfare Work in the City of Melbourne', HB, no 19, Jul-Sep 1928, p.634, also Report, 1928, MCC, pp.479-81
Melbourne in 1927-8 yielded breast feeding percentages three per cent higher than the Victorian average, namely of 58% (703) of babies fully and 75% (904) fully or partly breast fed between age 0 and 9 months. But these results are inconclusive without knowledge of the mothers who attended, their health and social circumstances, which ultimately decided the result.

We cannot conclude that the baby health centres forestalled early artificial feeding, as the movement asserted, because the centre results themselves were the products of the behaviour of mothers who attended, whether or not they heeded the nurses' instruction. Many who did not attend belonged to the ranks of the casual poor; conversely, the respectable, of regular habits, who tended to be healthier and better housed, were more likely to seek advice, as the mothers' testimony shows.

In fact, contrary to the baby health centres' reputation for restoring breast feeding, breast feeding declined as the movement expanded. Reiger has established this point on the basis of the Victorian evidence for babies under nine months old. Throughout Australia, an estimated 78-80 per cent of babies were breast fed up to three months in 1942-3. The available Victorian figures for babies during their first three, six and nine months, according to their last attendance at the centre, are given in Table 16.

124South Melbourne, City Surveyor's Report, 1927-8, p.3
125An invaluable contribution to the literature on breast feeding is Howard E. Williams and Allan Carmichael, 'Nutrition in the First Year of Life in a Multi-Ethnic Poor Socio-Economic Municipality in Melbourne', *Australian Paediatric Journal*, vol 19, 1983, pp.73-7. Their results support those here; i.e., in a study of 304 consecutively born infants in Brunswick, 'nutrition was suboptimal in approximately 50% [because of] a high failure rate in establishing effective lactation in the 82% of mothers who commenced breast feeding, [and] the early and frequent feeding of solids.... Successful breast feeding was positively correlated with better education and working skills while early introduction of solids and canned food was negatively correlated. Professional advice and influence in breast feeding was very limited as most mothers decided their feeding methods on their own preferences or their experience with other children, or on advice from their mothers or relatives'. Part of the responsibility for early failure of lactation rested with obstetric hospitals, ibid., pp.73, 76
126Reiger, *Disenchantment of the Home*, p.143. Percentages of infants exclusively breast or bottle fed in the United States, 1917-48, are given in Apple, *Mothers and Medicine*, p.153. The decline in breast feeding was more marked in the United States than in Australia.
127'Infantile Mortality in Australia', 8 Jul 1943, CRS A1928, Item 155/1 sect 4
Table 16  
Breast Fed Babies  
Baby Health Centres, Victoria, 1927-1945

<table>
<thead>
<tr>
<th></th>
<th>&lt;3 months</th>
<th></th>
<th>&lt;6 months</th>
<th></th>
<th>&lt;9 months</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BF</td>
<td>%</td>
<td>Part</td>
<td>%</td>
<td>Artif.</td>
</tr>
<tr>
<td>1927-8</td>
<td>72</td>
<td>13</td>
<td>15</td>
<td></td>
<td>63</td>
</tr>
<tr>
<td>1928-9</td>
<td>(a)</td>
<td></td>
<td>(a)</td>
<td></td>
<td>51</td>
</tr>
<tr>
<td>1929-30</td>
<td>(a)</td>
<td></td>
<td>(a)</td>
<td></td>
<td>45</td>
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<tr>
<td>1930-1</td>
<td>52</td>
<td>19</td>
<td>29</td>
<td></td>
<td>50</td>
</tr>
<tr>
<td>1931-2</td>
<td>(a)</td>
<td></td>
<td>(a)</td>
<td></td>
<td>48</td>
</tr>
<tr>
<td>1932-3</td>
<td>49</td>
<td>17</td>
<td>34</td>
<td></td>
<td>48</td>
</tr>
<tr>
<td>1933-4</td>
<td>(a)</td>
<td></td>
<td>(a)</td>
<td></td>
<td>49</td>
</tr>
<tr>
<td>1934-5</td>
<td>46</td>
<td>17</td>
<td>37</td>
<td></td>
<td>47</td>
</tr>
<tr>
<td>1935-6</td>
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<td>46</td>
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<td>1936-7</td>
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<td>1937-8</td>
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<tr>
<td>1938-9</td>
<td>(a)</td>
<td></td>
<td>(a)</td>
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<td>46</td>
</tr>
<tr>
<td>1939-40</td>
<td>67</td>
<td>13</td>
<td>20</td>
<td></td>
<td>56</td>
</tr>
<tr>
<td>1940-1</td>
<td>66</td>
<td>14</td>
<td>20</td>
<td>(b)44</td>
<td>14</td>
</tr>
<tr>
<td>1941-2</td>
<td>63</td>
<td>14</td>
<td>23</td>
<td>(b)45</td>
<td>16</td>
</tr>
<tr>
<td>1942-3</td>
<td>64</td>
<td>14</td>
<td>23</td>
<td>(b)44</td>
<td>15</td>
</tr>
</tbody>
</table>

1943-4  55  15  30  42  12  46  (27000 babies in each sample)
1944-5  52  14  34  42  12  46

(a) not available
(b) inconsistent with percentages under 9 months

Note: these figures are up to 3, 6 and 9 months, not at 3, 6 and 9 months, as used now.

Source: Vic Dept of Public Health, Reports of the Director of Infant Welfare (from 1943-4, Maternal, Infant, and Pre-School Welfare)

The altered methods of measurement during the war present a difficulty. These statistics had originally been collected to show the expected rise in breast feeding. Scantlebury Brown, ever meticulous, reasoned that the above percentages underestimated the level of breast feeding because they measured feedings at babies' last attendance at the centres; and when the desired result failed to ensue, the statistics changed. Local evidence indicates that the apparent increase in artificial feeding during the war was not an artefact of statistics gathering or of attendance at the centres. The baby
health centres in Fitzroy complained in 1944 about the noticeable increase in babies brought to the centres already artificially fed.\textsuperscript{128}

Some of the evidence at first sight is conflicting. A random sample of 1845 babies under nine months of age attending baby health centres in impoverished and comfortable suburbs of Melbourne in 1942-3 found that 56 per cent were fully and 13 per cent partly breast fed, the same as in the 1920s. But 22 per cent were fully weaned by three months of age, reinforcing Scantlebury Brown's fears of increased weaning at earlier ages.\textsuperscript{129} The yearly average figures recorded by nurses show a gradual rise in artificial feeding from the 1930s.

Together, the mothers' stories and the general statistics confirm McCalman's extrapolation from oral evidence among the working-class mothers of Richmond (the first in Victoria to be given access to a baby health centre) that the 1930s marked the 'beginning of the end of the easy breast-feeding' in Australia.\textsuperscript{130} They suggest that breast feeding levels changed little until the 1930s, when the downturn became noticeable to mothers and measurers. The gradient steepened in the war years, although to what extent we do not know, given that the statistics are inconsistent. Between 1927 and 1940, when the method of measurement employed was the same, breast feeding under three months fell by 5 per cent and up to six months by 7 per cent. Allowing for the difficulties outlined in Table 16, it appears that a big drop occurred during the war first among babies 3, 4 and 5 months old, and subsequently among babies under three months. If so, the first to be affected were the age group in which infant diarrhoea had traditionally been highest. It has been established that the welfare professionals made their greatest impact in the war. This coincidence with the decline in breast

\textsuperscript{128}Fitzroy, \textit{Report of MOH, 1944, Minutes of Health and Public Works Committee}, 5 Mar 1945, PRO 4544/18
\textsuperscript{129}\textit{Report of the Director of Infant Welfare, 1942-3}, p.10
\textsuperscript{130}McCalman, p.209
feeding, then, suggests that mothers who followed the regimens of four-hourly feeding religiously, and anxiously, lost their milk.

By the Second World War, too, the centres had succeeded in diverting attending mothers from condensed milk to the fresh (or stale) product. Of artificially fed babies seen at the centres, 56 per cent were fed cows' milk, 21 per cent dried milk and 14.5 per cent condensed milk in Victoria in 1927-8; by 1939-40, among a sample of 7653 bottle fed babies, 69 per cent drank liquid cows' milk, 20 per cent dried milk and 2.6 per cent condensed milk. The figures suggest a rapid increase in dried milk consumption in the war. Again, according to the available Victorian figures, the use of dried milk among bottle fed centre babies doubled in two years, from 18 per cent in 1940-1 to 39 per cent in 1942-3, an increase which the centres blamed for a short-term rise in infant diarrhoea. The improvement in infant health might have come earlier in Australia, as in Britain, had centres not for so long opposed dried products; indeed, in Australia, despite the declared medical preference for dried milk, especially in the summer, the opposition seems in fact to have been more enduring.

The infant welfare system itself was an outcome of the fertility decline and of reduced infant mortality. Mothers who thought that they knew nothing about babies did so because of rapid demographic change. The transition to small completed families meant that by the Second World War it was rare for a mother's mother to have a baby just a few years older than her daughter's first baby. There was less overlapping of generations. This increased the probability that the daughter would follow the infant welfare sister's opinion, especially if, no longer around the corner from parents and siblings, she lived apart from her mother, separated by Australian distances.

131 VBHCA, Council, Minutes, 4 Aug 1942; Reports of the Director of Infant Welfare
132 On Britain, see Smith, The Retreat of Tuberculosis, p.189
133 See Appendix 5
If her own mother had a baby or toddler, the daughter could not very well argue that times had changed. Mrs Henderson, whose only son was born in the 1920s, in Sunshine, an industrial area of Melbourne, while she was scrubbing the floor (her mother was present; she 'had had ten, and that had never happened') followed her mother's advice because she had her own baby a few months older. It was common for the eldest daughter in large families to play a large part in raising her younger siblings, whom she regarded almost as her own. Even without this experience in surrogate mothering, a young woman by the time she bore her third child had usually gained the confidence to challenge the regimens, if she had not previously believed in her own good sense. The probability that women would attend baby health centres diminished with subsequent children; with completed family size reduced to two, women were more likely to defer to professionals about how to nurture their offspring. Alert to the threat posed by the hostile 'mother of ten' or 'mother of 16', the baby health movement pilloried her advice on the grounds that infant mortality was high in large families, thereby acknowledging yet again the association between high fertility and infant death rates.

The baby health movement did not contribute significantly to the falling infant diarrhoeal death rate until the 1930s, by which time diarrhoea had ceased to be a major killer - and the birth rate had reached its nadir. Mothers needed material and educational resources, space, time and money to follow the routines; that is, constraints had to be removed first, and this did not happen for most women until after 1939.

134Henderson, interview, Wonthaggi, 16 May 1986
135In a typical example, a nurse disputed the competence of a grandmother, a mother of 16, to dissuade the daughter from attending, when the grandmother had lost six of her children,'Baby Health. Grandmother to the rescue. Her Sixteen Children', Cootamundra Liberal, 7 Sep 1927
CHAPTER 8
NEWBORN

The benefits of reduced infant mortality accrued to babies after their first week. But contemporaries did not discern precisely the declining trend in one month mortality that affected babies after their first few days of life. Until 1920 they thought that the death rate in the first month had remained unchanged at about 30-33 deaths per 1000 live births, and this assumption shaped their attitudes to infant welfare policies.¹

By the 1920s it became apparent that the death rate over one month had dropped below that under one month - the neonatal rate. The perceived changes in the mortality rates brought with them new perceptions about the causes of perinatal deaths (a word invented in the 1940s to describe stillbirths and neonatal deaths). The more that infant diarrhoeal and respiratory deaths subsided, the bigger grew neonatal mortality's share of a diminished total infant death rate. By the 1930s two-thirds of all infant deaths were in babies under one month old.

These changed perceptions extended to maternal deaths and to the realisation that safer childbirth for mothers meant safer childbirth for infants, and the policy implication of this was that 'safe maternity' came to be upheld as a crucial way of increasing the actual number of successful births. Maternal mortality rates had hardly changed since the late nineteenth century; for our purposes it is sufficient to note that the rate for Australia hovered about a mean of 5 deaths of mothers in every 1000 live births. In New South Wales, where the registered figure exceeded the national average, one woman died for every 175 babies born alive, the same proportion as in Scotland.² The Australian maternal mortality rate was

²See Appendix 9. Rates for the late nineteenth century are recorded in Quiggin, No Rising
lower in the early 1920s than in the United States and New Zealand, but higher than in England and much worse than in Scandinavia or the Netherlands. If anything, the Australian rate appeared to rise from the 1910s to the 1930s because of an increase in septic abortion deaths (the trends in Australia and New Zealand are given in Appendix 9(A)). Infant health authorities, doctors and the public could not ignore that the majority of mothers lost to childbirth were 'young women in their prime', aged 30 or younger. The major killers in childbirth were puerperal sepsis, or blood poisoning, toxaemia and haemorrhage. Any of these complications in the mother might be accompanied by illness in the child and all were common reasons, even when the mother recovered, for the failure of breast feeding.

When Annie Springthorpe died on her 30th birthday, giving birth to her son, Dr Guy Springthorpe, in 1897, she left her grieving husband with two older children as well as the new baby. These private tragedies not only placed constraints on the birth rate, but raised the proportion of newborn deaths and commanded a high toll of orphaned children. The toll of

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*Generation*, Table 4.1, p.40. Possibly the NSW rate was higher because it included deaths from illegal operations (abortion) that elsewhere were classified under homicide, Morris, *Annual Report of the Director, Division of Maternal and Baby Welfare*, 1927, p.39


6An example of a mother who lost her milk because of sepsis is given in *RSWMB, Annual Report*, 1929-30, p.10

7Age, 17 Jun 1980, p.15; Memorial album presented by Dr J.W. Springthorpe to Dr Felix Meyer, AMA MS 1650. Dr Springthorpe jnr. grew up to preside over the Tweddle Hospital and later Melbourne's Lady Gowrie Child Centre.
Figure 16  Infant Mortality Under 1 Year, Under 1 Month, Under 1 Week, Victoria, 1870-1970

Source: Consultative Council on Obstetric and Paediatric Mortality and Morbidity, Melbourne
Figure 17  
Infant Mortality by Age Period  
New South Wales, 1895-1939

Source: NSW Department of Public Health, Annual Report of the DGPH, 1939
orphans was serious (1554 in 1921).  

In tandem with maternal mortality, the incidence of stillbirths appeared to increase from the 1910s to the 1920s. These, too, medical authorities thought were related to the health of the mother and more especially the quality of care that she received, as most of the dead-born lost their lives at birth rather than in pregnancy. Stillbirths in New Zealand had been notifiable since 1913, but in Australia stillbirths were not registered by law until the 1930s and then not comprehensively. New South Wales imposed no such ruling until 1935 and Victoria not until 1953. In Australia and New Zealand, available figures suggested that stillbirth rates rose between 1914 and 1921 before stabilising at about three per cent. Their omission from the infant mortality rate became an issue once post-neonatal mortality had declined; for every 100 births in the 1920s, three babies were born dead, while of the survivors, three died in their first month, and a further three before their first birthday.

The mortality rate of babies in the first week of life remained high. During the 1920s 75 per cent of deaths in the first month occurred in the first week, and by the 1930s first week deaths accounted for half of the total infant mortality rate. The continuing high death rate in the first week as

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8 The Commonwealth Year Book recorded the annual toll of orphans
10 Malcolm Fraser, 'New Zealand: Infant Mortality Rates and Still-births', MJA, 19 May 1928, p.612. Hitherto, Australians had to rely on hospital records and maternity allowance statistics that offered some guide to numbers since mothers (excluding Aboriginal mothers) were paid for a baby born alive or dead. Stillbirths became notifiable in Western Australia in 1930, South Australia from 1937, and from 1927 in Britain; H.O. Lancaster, 'Infant Mortality in Australia', MJA, 21 Jul 1956, p.105. Stillbirths, however, were recorded as births and deaths in Western Australia as early as the 1890s, George Lane Mullins, 'Registration of Still Births', AMC, 15 Jul 1894, pp.255-6
12 Proportions are from Margaret Harper, 'Causation and Prevention of Mortality During the First Month of Life', MJA, 20 Feb 1926, p.208; Wilson, 'The Prevention of Disease in Infancy and Childhood', p.310; Morris, 'An Essay', MJA, 12 Sep 1925, Table III, p.304; Marie Brown, 'The Maternity Allowance', Health, vol 1, no 5, May 1923, p.128
compared with the downward trend in post-neonatal deaths suggests that 'endogenous factors' associated with congenital defects, gestation and birth were dominant.13

Explanations of the divide between deaths under and over one month changed with the new mortality pattern. This divide had long been accepted; neonatal mortality in eugenist logic represented nature's natural death rate.14 Social hygienists deemed it natural because it removed the hereditarily tainted, who if they lived should not be allowed to reproduce, but be segregated in asylum or gaol. These ideas coloured the classification of deaths in the newborn; under the rubric of developmental diseases, statisticians combined 'prematurity' together with 'congenital debility' and defects, which were thought unpreventable, in being hereditary or prenatal in origin. But as post-neonatal mortality fell, new assumptions were advanced to counter the notion that premature or small-for-dates babies were 'unfit'. Dr Clubbe told the Royal Commission of Health in 1925 that such babies frequently turned out as healthy normal children.15 Babies lost to birth difficulties could well be healthy specimens, Dr Robert Marshall Allan, the first Professor of Obstetrics at the University of Melbourne from 1929, asserted in the 1920s, whom the State could 'least afford to lose'.16

From the 1920s doctors began to see some neonatal mortality as preventable by ante-natal care and by safer obstetrics. This view extended ideal medical supervision from conception to birth, and after. From the 1920s 'prematurity' replaced diarrhoea as the major killer. In the official record this was responsible for a third of the total infant mortality, or the

14M.H. Watt, New Zealand's future Director-General of Health, 'Infant Mortality in New Zealand', NZ Journal of Health and Hospitals, vol 4, no 4, Apr 1921, p.92
15RCH, Evidence of Clubbe, 10 Mar 1925, q.6395
deaths of 25000 babies in the 1920s.\textsuperscript{17} Probably the contemporary usage of 'prematurity' described those now termed low birth weight babies, whether premature or small for dates. McKeown has noted this ambiguity: babies under 2500 grams (5 lb) were labelled premature from about 1920, which confused the problems of retarded foetal growth and early labour, while the mark was set too high to identify the truly immature.\textsuperscript{18} It is now recognised that prematurity is one of a number of causal factors associated with low birth weight, which is also related to the age and parity of the mother, her health, social class, education and race.\textsuperscript{19} The vague term 'debility' suggests the same sources in poor nutrition and care given to the mother and baby. The relationship between low birth weight and poverty is now well documented. In Victoria in the 1920s the incidence of 'prematurity' was higher in the city than in the country and death in these low-weight babies more frequent in poorer suburbs.\textsuperscript{20}

Contemporaries attributed much of the mortality in 'premature' babies to the toxaemias of pregnancy. These also endangered mothers.\textsuperscript{21} Most deaths from toxaemia were due to eclampsia, the convulsions and coma associated with high blood pressure, fluid retention (oedema) and proteinuria in pregnant women. In untreated cases, the baby suffered a 50 per cent chance of dying if its mother had a convulsion. The baby, too, could have eclamptic fits like its mother, and die from hypoxia, placental

\textsuperscript{17}Calculated as one-third of 76960 infant deaths, 1920-9, Vamplew (ed), Australians: Historical Statistics, p.57
\textsuperscript{18}McKeown, Origins of Human Disease, p.112
\textsuperscript{21}About one-fifth of maternal deaths were due to toxemia, J.C. Windeyer, 'The Toxaemias of Pregnancy with an Analysis of 158 Cases of Eclampsia', TAMC, suppl. to MJA, 5 Apr 1924, p.179 (18-20%), A.M. Wilson, discussion following, p.185 (22%); Marshall Allan reported 18%, Frank M.C. Forster, 'One Hundred Years of Obstetrical and Gynaecological Teaching in Victoria', Aust & NZ J of Obstetrics & Gynaecology, vol 6, no 2, May 1966, p.168
separation or simply from prematurity, if its mother had an attack before full term.22 Today we know that toxaemia increases with post-maturity, as opposed to prematurity, and that the syndrome is more common among women giving birth for the first time. But eclampsia remains an enigma, its etiology unclear.23 This evidence further supports McKeown's judgment that the epithet of 'premature' applied to small babies rather than those born early.24

Injury at birth proved to be the second - although at only a fifth the rate of prematurity - most reported cause of death in the first week of life. Usually it took the form of a crushed skull resulting in cerebral haemorrhage. In Victoria in the mid-1920s, 13 per cent of babies who lived no more than a week died of their birth injuries, an average in this state alone of 101 babies a year.25 This rate too was not separately recorded until the 1920s, when narrowing notions of inherited deficiency demanded that cranial trauma be distinguished from congenital defects. Although some injuries continued to be obscured under congenital debility, heart disease or malformations, their incidence, once exposed, showed an alarming tendency to increase. For Australia as a whole, the reported birth injuries death rate rose from 2.81 in 1931 to 4.27 in 1941, before falling back to 3.57 in 1944. By this time, more babies were damaged on their entry into the world (548 in 1944) than died before their first birthday of diarrhoea and enteritis (207 in

22Mein Smith, *Maternity in Dispute*, pp.4-5
23Mein Smith, *Maternity in Dispute*, chap 6; Loudon, 'Deaths in Childbed'. Eclampsia's unknown cause produced a controversy over methods of treatment between two schools. The Rotunda school, centred on the Rotunda Hospital in Dublin, advised washing out the stomach and the bowels with soap and water; the English and Continental school insisted that the uterus be emptied as rapidly as possible. This necessitated medical intervention, whether by the becoming-safer methods of induction and Caesarean section, or accouchement forcé. Arthur M. Wilson observed the change in a generation from conservatism to 'drastic surgical measures', in 'The R.H. Fetherston Memorial Lecture', *MJA*, 5 Jan 1946, pp.3-4
24McKeown, *Origins of Human Disease*, p.112
As in the case of diarrhoea, some of this increase would have resulted from improvements in diagnosis, but this explanation is unsatisfactory. Rather, the evidence suggests a role for rising medical intervention. The popularity of twilight sleep (scopolamine and morphine) and the fashion generally for painless childbirth that accompanied forceps and surgery probably contributed, too, to the newborn death rate from asphyxia. Together, birth injuries and asphyxia were recorded as the dominant causes of death at birth.

In 1927-8, Dr Marshall Allan, who as Director of Obstetrical Research before he was appointed Professor of Obstetrics at Melbourne University, ought to have known what he was talking about, noted that deaths from prematurity were more prevalent in the working-class suburbs, and birth injuries more prevalent in the 'residential areas' - although he provided no table of supporting data. My data about the illegitimate supports his contention. Illegitimate babies in New South Wales recorded at once a higher neonatal death rate and a lower injury rate than babies born to married parents: 1.93 in 1924, as opposed to 2.19 among the legitimate. Probably these babies were injured less because they were born to younger mothers, and because their clandestine births in refuges and in women's hospitals usually proceeded without a private medical practitioner and thus without instruments and expensive pain relief. My New Zealand evidence shows that injury and sepsis rates were lower in midwife than in doctor deliveries at the time, and Dr Henry Jellett, the former Master of the Rotunda Hospital in Dublin, produced international statistics to demonstrate that maternal mortality rates were routinely higher in

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26 On birth injuries obscured see Wilson, 'The Prevention of Disease in Infancy and Childhood', p.310; rates are from Commonwealth Year Book
29 NSW Official Year Book, 1925-6, p.172
countries, including Australia, where doctors attended normal births.\textsuperscript{30} Poverty tended to low birth weights and weak mothers, and affluence to 'meddlesome midwifery', but the combination of poverty and 'meddlesome midwifery' was the most fatal conjunction of all.

The term 'meddlesome midwifery' had for decades described excessive interference by forceps, surgery and drugs, all forms of intervention which were the preserve of the medical practitioner, not of the midwife. If their use saved lives in the minority of cases where interference was appropriate, their abuse - careless or needless interference - caused injury in baby and mother and increased the danger of puerperal sepsis.\textsuperscript{31} Doctors knew that low standards of practice had their origin in poor student training. Dr Sydney Morris never forgot his single instance of instruction in how to apply forceps, '... the child delivered as the result of one prolonged but strenuous extractive effort, albeit with a tear of the perineum reaching almost to the anus, ...'.\textsuperscript{32} The mother's labour in this case was delayed. Often doctors intervened precipitately. 'We have to admit, as a profession,' Dr Jean Greig, medical officer to the Victorian Education Department, warned her colleagues in 1925, 'that women are very often interfered with far too soon.'\textsuperscript{33} Practitioners into the 1920s might apply long, heavy-handed 'axis traction' forceps in the first stage of labour under twilight sleep or anaesthesia, dragging the baby through the pelvis 'by sheer brute force'.\textsuperscript{34}


\textsuperscript{31} On meddlesome midwifery generally see Mein Smith, \textit{Maternity in Dispute}, chap 5

\textsuperscript{32} Morris reviewed the inadequacies of medical students' education in 'An Essay', pp.327-9. The Australian student was required to attend 20 labours. This requirement proved difficult to meet, however, and medical training remained inferior to the that of the midwife, who attended 50 women under supervision, 20 cases personally, and had to pass an examination. Nurses Registration Act 1923, \textit{Victorian Statutes}, 14 Geo V No 3307; Main and Scantlebury, \textit{Report to the Minister of Public Health}, p.13

\textsuperscript{33} RCH, J. Greig during evidence of Dr Geo. Armstrong, Snr Gynaecologist, Sydney Hospital, 10 Mar 1925, q.6305

\textsuperscript{34} P.L. Hipsley, 'Stillbirths and Early Infantile Mortality', \textit{MJA}, 20 Feb 1926, pp.203-7
Indeed the concerns about toxaemia and meddlesome midwifery were related, as it was not uncommon before Caesarean section became respectable (and safe) for a doctor, confronted with a mother having a convulsion, to dilate the cervix manually, turn the child into a breech presentation and forcibly extract it by pulling hard with forceps on the leg.\(^{35}\) Manual dilatation of the cervix is a clear example of 'bad practice and unnecessary interference' that kept up maternal mortality rates.\(^{36}\) One Sydney doctor as late as 1929 used forceps in all cases as a prophylactic.\(^{37}\)

In 1927-8, as part of the investigation into maternal mortality that secured him his professorship, Marshall Allan counted up how often doctors resorted to forceps deliveries. Of 633 practitioners whom he interviewed throughout Victoria, about half were above his yardstick for measuring the excessive use of forceps, of 30 per cent.\(^{38}\) The frequency of forceps use rose with the population size of towns, and 'reach[ed] its zenith in Melbourne', where 95 doctors interviewed resorted to instruments in over half their cases and 117 in 30-50 per cent. Women who lived in working-class suburbs featured prominently in the excessive category and those from comfortable suburbs more in the 10-30 per cent range, which suggests that the latter, overall, were receiving better care.\(^{39}\) Though no definite relationship can be established between forceps and birth injuries rates, that both were higher in Melbourne suggests that mothers with access to medical facilities were more likely to encounter interventionist procedures, with their advantages, when astutely used, and when uncalled for, their associated mishaps. Marshall Allan himself deduced from autopsy

\(^{35}\)Eg F.C. Stevenson, 'On a Case of Puerperal Eclampsia', AMG, 9 Nov 1912, p.483
\(^{36}\)Loudon, 'Deaths in Childbed', p.18
\(^{37}\)H. Leighton Kesteven, 'Prophylactic Obstetrical Practice: An Account of 768 Consecutive Confinements, with Forceps Delivery, in General Practice', MJA, 5 Jan 1929, pp.14-19
\(^{38}\)Marshall Allan had been assistant Master at the Rotunda, under Jellett, before the Great War. For Jellett's parallel inquiries into forceps use in New Zealand, see Mein Smith, Maternity in Dispute, pp.72-5
and hospital results that 'any interference, including low forceps [in second stage labour], must carry an added risk.'

Table 17

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<th>Year</th>
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<td>1934-5</td>
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<td>83</td>
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The greater degree of medical intervention between the wars accompanied the moves from home to hospital and to increased doctor attendance. These trends, which elevated the status of obstetrics, shaped responses to neonatal mortality. In Australia medical deliveries had been increasing as Table 17 shows. Doctors delivered the fewest babies in Queensland and Tasmania, relatively fewer also in Western Australia and were present most often at the birth of South Australian and Victorian babies. The move to physician deliveries occurred more slowly in states with dispersed populations and no medical schools. Within states, doctors were scarcer and medical attendance was lower in inner city suburbs, and in the country. The figures also demonstrate that some women turned to cheaper midwives in the Depression, when the maternity allowance was means tested. Hitherto, the £5 bonus had helped to pay the doctor's fee of five guineas, that rose to seven guineas by 1945, while Mrs Eileen Morris in

41 Mein Smith, 'Childbirth', in G. Aplin, S. Foster and M. McKernan (eds) Australians: A Historical Dictionary, p.75, where '75 per cent' should read '79 per cent' (in 1924)
42 Queensland's medical school, which remained small, dates from the 1930s, while Tasmania had no medical school until the 1950s; the money for Queensland's Chair in Obstetrics came from its share of the 1935 King George and Queen Mary Jubilee Memorial Fund for reduced maternal and infant mortality, AA CRS A1928, Item 680/30/2 sect 2
1941 paid hospital fees of £10 6s 4d. But the maternity allowance encouraged medical attendance in another way, by imposing on parents and midwives the requirement that they obtain a medical certificate to certify that a child was a viable child (if it died within 12 hours), a service for which some practitioners at first charged an exorbitant fee. It was easier for mother and midwife to have the doctor attend and sign the certificate to ensure that the allowance would be forthcoming.

In Sydney by 1919, half of all babies were born in hospital; 34 per cent in small private hospitals, including 'one-bed homes', which could be the midwife's house, and 16 per cent in the five large public lying-in institutions. Sydney mothers appeared to lead Australia in the move away from home, but the proportions of hospital births were probably exaggerated by the narrow definition of what constituted a hospital, which in New South Wales could have one or more beds. (In New Zealand, a hospital was defined as having two or more beds, and births in unlicensed 'one-bed homes' were regarded as home births.) Victoria recorded a hospital birth rate of 60 per cent by 1926. The transition from home to hospital was completed by the 1930s, assisted by the addition of maternity annexes to public hospitals, and in the country by the growth of bush nursing hospitals. Whereas 60 per cent of women cared for by Victorian bush nurses gave birth in the new cottage hospitals being built in rural areas in 1927-8, by 1939 'practically all' their babies were born in hospital. In New South Wales, 91 per cent of babies were born in hospital by 1939. Mrs Dulcie Maidment's

43 Morris, questionnaire
44 Purdy, 'Maternal Mortality in Childbirth', pp.44-5
45 The sweeping definition that covered any house or building, or even a tent, was designed to catch midwives suspected of acting as abortionists, Private Hospitals Act 1908, Statutes of NSW, 8 Edw VII No 14; and Milton Lewis, 'Hospitalization for Childbirth in Sydney, 1870-1939: The Modern Maternity Hospital and Improvement in the Health of Women', JRAHS, vol 66, pt 3, Dec 1980, pp.202-3
family history typifies the change. She was born at home in 1911 with a midwife in attendance, as were her siblings, except for the last brother, born in 1925 at a private hospital in Newcastle. Her own three children were born between 1931 and 1941 at Sydney public obstetric hospitals.47

Australia and New Zealand moved to hospital delivery simultaneously, after allowance is made for the different definition of 'hospital' in the two countries. It appears that Sydney and Melbourne mothers departed the home first, a move influenced by metropolisation, and led by the large teaching hospitals that opened their doors to the indigent from the 1890s, the Sydney Women's Hospital and the Queen Victoria Hospital run by women doctors for women, for example.48 The Antipodes hospitalised ten years before the United States, at about the same time as urban America, and 20 years earlier than Britain.49

Both Dominions copied the English and United States systems, with important differences. Australia more closely followed trends in the United States from the 1920s, whereas New Zealand remained closer to the British model. New Zealand, led by British officials who advocated the Dutch system of midwife attendance, backed the trained midwife until local doctors revolted against state intervention in midwifery and won control of maternity services in the 1930s. New Zealand midwives were allowed to do more than their Australian counterparts, because in Australia a forceful local medical profession, centred on the medical schools in Melbourne, Sydney and Adelaide, overwhelmingly opposed the trained midwife except as a maternity nurse, an assistant to the doctor.

47D. Maidment, letter, 9 Jun 1987
48The word 'metropolisation' is N.G. Butlin's.
ANTE-NATAL CARE

In the 1920s and 1930s, reformers, who increasingly saw mother and child as one being, turned to ante-natal care as the best hope of reducing neonatal and maternal mortality. The goal of ante-natal supervision, Sister Muriel Peck explained in her first lecture as assistant to Victoria's Director of Infant Welfare, Dr Vera Scantlebury Brown, in 1927, was the 'birth of a normal full-time baby, and a healthy mother who is able to feed her own baby'. Not only would prematurity and other complications be conquered, but post-neonatal mortality would diminish further with the baby's better resistance to diarrhoea and other infections. Care in pregnancy came to be recognised as the high point of preventive medicine, and epitomised the passage from environmental to personal health services.

From the beginning ante-natal care was attached to hospitals, a trend that was reinforced as more Australians were born in hospital. Drs T.G. Wilson of Adelaide and J.C. Windeyer were the first obstetricians in Australia to open 'outdoor' clinics, in 1910 and 1912, at the Royal Adelaide Hospital and Sydney's Royal Hospital for Women, taking as their model the work of the Scottish ante-natal pioneer, Dr J.W. Ballantyne of Edinburgh. Wilson's clinic folded when he went to war; Windeyer's continued. In 1920 Melbourne's Women's and Queen Victoria Hospitals opened clinics. By the mid-1920s a Melbourne mother might be clinically examined at the Queen Victoria Hospital, the Alfred Hospital, the Salvation Army Maternity Home and the Foundling Hospital, and a Sydney mother at the Women's Hospital.

in Crown Street, the Royal Hospital for Women, St Margaret's Hospital, South Sydney and Royal North Shore Hospitals and St George's Hospital in Kogarah. Adelaide mothers could go to the Queen's Home from 1921. There was no service for Brisbane mothers, though Perth's King Edward Maternity Hospital had a government clinic by 1926.52 Technically these hospital clinics were open to all women, including those who had engaged a private doctor, but their positioning at charitable institutions meant that in practice, like the early baby health centres, they were directed at working-class mothers and babies known to have the highest mortality rates.

Attendances by mothers increased five-fold at the Melbourne Women's Hospital clinic between 1920 and 1925, from 299 to 1849. Even so, these totals are a tiny proportion - under one per cent in 1920, five per cent in 1925 - of pregnant women in Victoria. In New South Wales, an estimated 80 per cent of mothers by the late 1920s received no ante-natal care. This prompted the government in 1930 to open ten clinics for women who could not afford medical fees, supervised by Dr Sydney Morris as Director of Maternal and Baby Welfare.53 The impact of these services could remain but limited when mothers after their pregnancy was confirmed simply booked with the nurse at the maternity home for their confinement.

Women cited two principal reasons for their reluctance to be supervised in pregnancy: they saw no reason for a check-up because they perceived having a baby as normal, and many were deterred by the absence

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52 The QVH clinic opened in July 1920, VBHCA, Executive Council, Minutes, 6 Jul 1920, while the Melbourne Women's Hospital opened an ante-natal department at the end of the war that saw very few women, recording a total of 150 attendances in 1918, A.M. Wilson, 'Antenatal Study', MJA, 15 Aug 1925, p.192. There is a discrepancy whether this clinic opened in 1919 or 1920; I have assumed Scantlebury Brown was right. Main and Scantlebury, Report to the Minister of Public Health, p.13; RCH, Evidence of Fourness Barrington, 9 Mar 1925, q.6039, John Dale, Officer of Health, WA, 19 May 1925, q.14426; J.H.L Cumpston and F. McCallum, Public Health Services in Australia, Geneva, 1926, p.51

of privacy in the presence of men. Drs Vera Scantlebury and Henrietta Main were impressed on their visit to New Zealand in 1926 by the public ante-natal clinics run by midwives and Plunket nurses, and supervised by a woman doctor, because women who might otherwise have avoided the clinics were encouraged by being 'examined by women only'. In Adelaide, Dr Helen Mayo also emphasised mothers' need for privacy and the difference made by the appointment of a woman doctor to the School for Mothers' two pre-maternity clinics in 1922 and 1925. Throughout her tours of inspection of baby health centres in New South Wales, Nurse Inspector Lucy Spencer found ante-natal work 'uphill work at present' in 1925 because mothers were shy. Some had no bus or tram fare, or rejected the discomfort of travelling encumbered by pregnancy and small children, or simply could not afford the time wasted in queues. If they did attend a clinic at a woman's hospital or welfare centre, they were more likely motivated by uncertainty or fear, upset because they might not have menstruated since the last child was born, because they sensed that something had gone wrong, if they were in pain, fainting, vomiting, had experienced toxaemia in an earlier pregnancy, or if the baby's movements had stopped. Middle-class women whom the profession intended to visit the family doctor were loath to pay increased fees. But they also found that their own doctors advised against the visit.

With the role of the baby health movement curtailed by a medical profession determined to block ante-natal care from passing, with infant welfare, into state control - and to secure a stronger hold on obstetrics, which was the lynchpin of family practice - ante-natal care depended on the cooperation of medical practitioners. But doctors were not trained to be

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54Main and Scantlebury, p.11; RCH, Evidence of Mayo, 14 May 1925, qq.13648-9
55RCH, Evidence of Lucy Spencer, 10 Jun 1925, q.16857
56RCH, Evidence of Emily Irvine, Secretary, CWA, NSW, 23 Mar 1925, q.8788; Ridler, 'An Outdoor Ante-Natal Clinic', pp.391-2
preventive-minded. Knowing this, the British Medical Association's Victorian branch circulated a questionnaire to general practitioners in 1925 asking where mothers could obtain ante-natal care without engaging a doctor. It found that 3 mentioned district nurses, 8 suggested bush nurses, 4 private and 20 public hospitals, 25 baby health centres and a large proportion (number undisclosed) nowhere at all. In other words, general practitioners did not know of the clinics at the women's hospitals.57

The profession realised that its members had to be taught to offer and to appreciate the need for ante-natal care.58 This required money. In 1922-3 the Federal committee of the British Medical Association lit on the baby bonus as a source of funds to build hospitals and ante-natal clinics for the edification of doctors and mothers, and campaigned to abolish the allowance for being a 'ghastly failure'.59 Millions had been paid out since 1912-13 without effecting any change in stillbirths and neonatal mortality, in maternal mortality, or in the course of the birth rate. (The Federal Government by the 1920s in fact spent £1.3 million a year on the maternity bonus, having outlaid nearly £17 million between 1912 and 1925.)60 'At first sight', the editors of the Medical Journal demurred, aware that doctor deliveries had risen on the bonus proceeds, medical practitioners appeared to 'have failed in the discharge of a responsible duty.' They issued a hasty defence against the charge that the maternal and first month mortality could be marshalled as evidence that doctors themselves, whose fees the

57 RCH, Evidence of R. Fowler, Council, Vic Brch BMA, 29 Jan 1925, q.1270
59 RCH, Evidence of Fourness Barrington, former lecturer in obstetrics and gynaecology, Sydney University, 9 Mar 1925, q.6005, 6007
60 Sums calculated from Ronald Mendelsohn, The Condition of the People: Social Welfare in Australia 1900-1975, Sydney, 1979, pp.374-90; the editors of the Medical Journal thought that £7.75 million had been spent by 1924, 'Maternity Benefit', MJA, 9 May 1925, p.485
allowance helped to pay, had failed. Midwives were to blame for calling the doctor too late, the editors asserted, the home was 'wholly unsuited for safe obstetrics', and his presence 'avail[ed] but little' if the woman had needed care beforehand. This attempt at absolution implied both that mothers did not see the doctor before the birth and that the midwife who depended for her livelihood on his good favour did not like to bother him early in a patient's labour for fear of chastisement.

Despite medical protests, women's groups fought successfully to retain the allowance. At a conference called by Dr J.H.L. Cumpston, head of the fledgling federal Department of Health, in 1923, they argued that mothers had always spent the money wisely, usually on the services of a doctor and nurse, while the money allowed women to make some decisions for themselves. Nurse inspectors Blanche Day and C.M. Burne had found the same in Sydney in 1913: of 142 women interviewed on how they spent the allowance, 40 banked the money, 37 hired a nurse, 23 bought clothing or a cot, 21 devoted it to 'current expenses', 4 to arrears of rent and 4 to false teeth. It was a great comfort to the wives of the unemployed, while the educated and well-to-do saw it as a return on their tax. The educated women's banner carried added influence when combined with pragmatism: until the medical profession, medical schools and hospitals cooperated with the baby health centres to provide an adequate service, there was no guarantee that the removal of the allowance would achieve what its existence had not, namely reduced neonatal and maternal death rates.

61 'Maternity Benefit', MJA, 9 May 1925, p.485
62 DT, 21 Mar 1923, RSWMB, 11/1. Conference papers are printed in Health, vol 1, no 5, May 1923. Findings of Sydney's nurse inspectors are from Report of DGPH, NSW, 1913, p.49. See also RCH, Evidence of Dr Grace Boelke, NCW, NSW, 23 Mar 1925, qq.8862, 8864; Cumpston, Report Upon the Activities of the Commonwealth Department of Health, vol 1, 1909-30. Cumpston had proposed dividing the money among the states to establish maternity centres on the British model, SMH, 22 May 1922. By 1925 he had become more influenced by United States and New Zealand initiatives, after an overseas trip in 1924, RCH, Evidence of Cumpston, 17 Feb 1925, q.3386
Ante-natal clinics probably succeeded more in saving mothers than babies. At the Melbourne Women's Hospital in 1926, stillbirths and neonatal deaths among 1399 expectant mothers admitted through the Emergency Department measured 10 per cent, compared with 6.6 per cent among 1281 women who attended the clinic. Among the ante-natal group, two women died, compared with the 26 deaths among mothers who entered the hospital for the first time in labour. Such statistics, it must be noted, overstate the contribution made by medical examinations, as the clinic figures included a higher proportion of women experiencing a normal pregnancy, whereas the Emergency admissions included a proportion rushed to hospital because something had gone wrong outside. Nevertheless the mothers' reasons for attending suggest that a significant number sought help because they feared that they or their babies might already be in danger. The results of the women's hospital clinics in Sydney and Melbourne demonstrated that ante-natal treatment reduced the incidence of eclampsia. Its incidence fell from one in 62 deliveries at Dr Windeyer's Sydney clinic in 1911-15 to one in 81 deliveries by 1916-23, while at the Melbourne Women's Hospital, nine of 42 women (21 per cent) who died in 1924-5 from eclamptic fits had had ante-natal treatment and 33 or 79 per cent had not.

Until doctors and midwives were educated to offer ante-natal care, any improvement, contained as it was to a minority of mothers and babies, could not filter through to aggregate mortality statistics. There was no organised pre- or post-natal teaching of medical students in Adelaide in the mid-1920s, and very little instruction in infant management and breast feeding. Melbourne students observed ad hoc in the ante-natal department

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63Wilson, 'The Prevention of Disease in Infancy and Childhood', p.311
64Windeyer, 'The Toxaemias of Pregnancy with an Analysis of 158 Cases of Eclampsia', p.184; cf., again, Mein Smith, Maternity in Dispute, pp.91-2
while in residence at the Women's Hospital. Most women depended on their general practitioners for advice. But only from the 1930s would a generation emerge from medical schools with some organised training, under the new professors of obstetrics. From the 1930s, too, Dr Margaret Harper in Sydney and Dr Kate Campbell in Melbourne, both authorities on the newborn, lectured medical students in mothercraft.

By present standards supervision in pregnancy was inadequate. In the 1920s women at the public clinics were examined twice only, the first for a preliminary examination and the second four weeks before term. My rough calculation based on attendances at hospitals and the Melbourne District Nursing Society's suburban clinics (the first opened in Collingwood in 1930, the second in South Melbourne in 1938 against medical opposition) suggests, however, that women were making on average five visits by the 1940s; women who consulted a specialist were also checked regularly, as Mrs Joy Ellerman, who had three children in the 1940s, was by her gynaecologist in Sydney in 1944. As late as the 1940s, by contrast, general practitioners customarily saw women but twice in nine months unless they developed toxaemia or other complications. Mrs Nancy Parker, whose four children were born in the 1940s, three in the war, saw the doctor twice in all of her

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65 RCH, Evidence of Marie Brown, 14 May 1925, q.13670; Main and Scantlebury reported six weeks' residence, in *Report to the Minister of Public Health*; but Morris, trained at Sydney, understood that practical obstetric experience for the Australian medical student extended to no more than three weeks, 'An Essay', p.328. Dr Beatrice Holt (Sharwood), who acted as locum medical officer to the VBHCA for Scantlebury Brown in 1924, later became President of the Canberra Mothercraft Society, and completed her training between 1918 and 1925, remembered that there was 'remarkably little' in the medical course on infant hygiene. Interview, Canberra, 18 February 1986

66 Marshall Allan introduced a postgraduate diploma in O & G in 1932, Frank M.C. Forster, 'Robert Marshall Allan', *ADB*, vol 7, 1891-1939, p.38; before the appointment of professors, the student was 'taught practical obstetrics by a nurse whose knowledge the student secretly despises,' or by a junior tutor, Morris, ibid.

67 Dr [Dame] Mary Herring, who had opened Melbourne's first suburban clinic in Prahran, had first to convince the local division of the BMA that only working-class mothers would be nursed and that Lodge patients would be notified to the Lodge doctor, MDNS, Minutes, 9 Nov 1937. Clinic estimates are from Vera Scantlebury Brown, 'Education in Health (Relating to Mothers and Young Children)', *HB*, no 72, Jul-Dec 1942, p.1934. Ellerman, letter, 19 Aug 1987
pregnancies, while Mrs Olive Lowe, who had four children, born between 1940 and 1947, received a check-up by the doctor after five months.68 Medical examinations themselves were limited in their effectiveness. Doctors watchful for toxaemic symptoms might test for protein (albumen) in the urine, but they did not take the mother's blood pressure.69 Usually obstetricians tested blood pressure belatedly, if the mother's urine had proved to be flocculent or clouded, or at worst turned solid on boiling, and thus after she had suffered kidney damage.70 Only in the 1930s did knowledge spread of the breakthrough finding that raised blood pressure generally preceded proteinuria as a warning symptom of toxaemia.71

THE ROLE OF INFANT WELFARE

In all of this, the role of the infant welfare sister was restricted to mothercraft education. The dominance of doctors over the management of pregnancy and childbirth and the move to the hospital, combined with women's reluctance to seek ante-natal care, which medicalised childbirth only compounded, severely limited the contribution of the centres. The nurse instructed the expectant mother on feeding, hygiene and clothing, and how to prepare for the coming baby, proffering advice on toughening up the nipples and issuing free patterns for the layette; she also urged women to visit their doctor or a hospital to be clinically examined. Baby health nurses in Australia, unlike Plunket nurses in New Zealand, were not taught to

68 Parker, letter, 9 Jun 1987; Lowe, questionnaire, Aug 1988
69 Dr George Armstrong, a Sydney specialist, had his country clients post him their urine specimens monthly, RCH, Evidence of G. Armstrong, 10 Mar 1925, q.6324
70 J.C. Windeyer, 'Blood Pressure Charts as an Aid to Diagnosis, Prognosis and Treatment in Albuminuria of Pregnancy and Eclampsia', MJA, 6 Dec 1924, pp.600-5
71 This was embodied in the replacement of the term 'albuminuria' by 'toxaemia of pregnancy'; Mein Smith, Maternity in Dispute, pp.92-3. The NSW Branch of the BMA heard at its meeting in July 1936 that blood pressure was the first sign to appear, 'BMA News', MJA, 23 Jan 1937. That this knowledge had not become general in Australia before 1940 is illustrated by Dr George Simpson's stressing the importance of blood pressure readings and demonstration of a mercurial sphygmomanometer to his Victorian colleagues in April 1940; Simpson, in Vic Brch BMA, Meeting, MJA, 1 Jun 1940, p.773. Simpson, a pioneer of ante-natal care, ran the Melbourne District Nursing Society's clinic in Collingwood from its opening in 1930; Rosenthal, People - Not Cases, chap 5
conduct physical examinations. So sensitive were the Victorian Baby Health Centres to criticism from the British Medical Association that if after a month an expectant mother had not visited a doctor, the nurse was supposed to refuse to see her. Even the most adventurous health centres, in the City of Melbourne and Prahran, described the ante-natal work of their women health officers as interviews rather than examinations of pregnant women. Only the Adelaide School for Mothers offered routine checks, as in England and the United States, at two of its baby health centres which ran ante-natal clinics from 1922 and 1925 supervised by Dr Marie Brown.

In theory, the division of duties between doctor and nurse was consistent with the latter's role of helpmeet, that incorporated responsibility for teaching mothers the care in details for which the overworked general practitioner had no time. In reality, the medical opposition to ante-natal care - performed by women doctors active in the infant welfare movement - demonstrated that many doctors would not brook interference by state agencies in this new field of private practice, and were determined to block any effective role by the baby health centres. Least of all, would they tolerate competition from nurses, whom they regarded as their inferiors, in a field which they wished to raise to a scientific court. The Sydney obstetrician Fourness Barrington insisted: 'I think it is different work altogether. The baby clinic is largely officered by nurses, and these pre-maternity clinics should be operated by medical men.' Ante-natal care was 'the doctor's job', J.B. Dawson, who moved from Adelaide to become New Zealand's

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72 In New Zealand the ante-natal clinic sister tested blood pressure and took pelvic measurements. Main and Scantlebury, p.11; Mein Smith, *Maternity in Dispute*, chap 6
73 Peck, First Lecture. The BMA had wanted more than this; it preferred that the nurse not see the expectant mother at all until she had gained the approval of the mother's doctor or hospital, VBHCA, *Executive Committee, Minutes*, 28 Sep 1926
75 Peck, First Lecture
76 RCH, Evidence of Fourness Barrington, 9 Mar 1925, q.6040
Professor of Obstetrics in 1931, asserted, and nurses should 'leave the true professional ante-natal work alone'. There is conflicting evidence as to whether infant welfare nurses at least tested for albumen in the urine. Asked whether the nurse examined an expectant mother's urine, Dr Margaret Harper replied 'No', but Nurse Inspector Lucy Spencer said the opposite in 1925, adding that that was the extent of examination at the New South Wales baby health centres. Harper's reply was understandable in a climate of medical hostility. So, too, would have been tests by a nurse where a local general practitioner neglected to make them.

Conceivably, just as nurses educated doctors in midwifery, infant welfare nurses educated some doctors as well as mothers by urging mothers to seek ante-natal care. However relatively few expectant mothers sought advice from the baby health centres. Compared with the number of babies attending centres, the number of expectant mothers remained small. A total of 3832 visited their local baby health centre at least once in Victoria in 1927-8, rising to 4768 in 1942-3, of which about three-quarters were new mothers.

MOTHERCRAFT IN THE MATERNITY WARD

The detailed care in the maternity ward contributed by the infant welfare movement probably comprised its greatest contribution to the survival and nurture of babies. It was in the hospital that mothers first met the regimes of mothercraft. Many of the infant welfare nurses from the 1920s, 1930s and 1940s were triple certificated, that is, they trained as midwives and nurses before they became infant welfare sisters (in Australia,

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77 Dawson, in Maternity in Dispute, pp.96-7. Dawson had travelled to Europe as an honorary commissioner for South Australia in 1924 to report on ante-natal clinics, MJA, 20 Sep 1924, p.312
78 RCH, Evidence of Spencer, 10 Jun 1925, qq.16859-61, Harper, questioned by Hone, 10 Mar 1925, q.6519
79 Scantlebury Brown, 'Education in Health (Relating to Mothers and Young Children)', p.1933
general nursing training was the necessary prerequisite; in New Zealand, registration either as a midwife or nurse). Conversely, the matrons and ward sisters of the obstetric teaching hospitals were required to hold infant welfare certificates. By ensuring that they did, the baby health movement led the field of what would become neonatology. Once institutionalised, the rules spread outwards, entering the curriculum of trainee midwives and nurses in the 1920s, following the passage of nurses registration acts.80 Sydney's Royal Hospital for Women opened its new mothercraft department in 1926, with a Tresillian nurse, Matron K. Kaibel, as the sister in charge, to care for the newborn and instruct nurses in mothercraft. She was responsible to Tresillian's Dr Margaret Harper. Matron Kaibel went on reside as matron over Tresillian for 23 years, from 1928 until 1950.81 Obstetric nurses in Western Australia, too, received infant welfare instruction from the matron of the King Edward Memorial Hospital who obtained her Tresillian certificate in order to be able to open a training school at the hospital, and to arrange care for the premature baby.82

The baby health movement was able to lead the field because doctors blamed midwives for the numbers of babies unnecessarily weaned in hospital and thus supported the hospital practice of mothercraft.83 Marshall Allan found artificial feeding prevalent in Melbourne's private hospitals in 1928. About five per cent of these hospitals had a 'good nursery'; infants slept with their mothers or in the hospital dining room or kitchen.84

80Victoria, Midwives Act 1928, 19 Geo V No 3734, Nurses Act 1928, 19 Geo V No 3744, which consolidated earlier legislation dating from 1915 for midwives and 1923 for nurses; New South Wales, Nurses' Registration Act 1924, Geo V No 37 (punctuation as per relevant Statutes). In New Zealand, all registered midwives had to undergo a period of training at a Karitane hospital, RCH, Evidence of Cumpston, 17 Feb 1925, q.3386
81RSWMB, Annual Report, 1925-6, p.12; Alison Cox, 'Historical Outline of Tresillian', draft paper, Sydney, Jan 1983
82RCH, Evidence of Harper, 10 Mar 1925, qq.6591, 6593; O'Hara, in Hetherington (ed), Childhood and Society in Western Australia, p.180
83RCH, Evidence of Clubbe, 10 Mar 1925, qq.6399-401
this changed with the entry of mothercraft into the maternity hospital. Mothers were instructed in clockwork feeding and the babies separated in the nursery, on grounds identical to those employed in the mothercraft home, of digestion, discipline and to give the mother a rest. Mrs Dulcie Maidment first saw her babies 'after they were bathed, dressed and wrapped when they were brought in to be introduced to breast feeding, after which they were returned to the nursery until next feed time. Meal times were 3 hourly at 6, 9, 12, 3, 6, 9',\(^{85}\) a routine that changed little, depending on the ward sister, from the 1930s into the 1970s.

The emergence of prematurity as the commonest cause of death intensified the emphasis on mothercraft because the feeding of low birth weight babies demanded manual adroitness and feeding with breast milk. These babies, Mayo recognised, required 'isolation, incubation, and meticulous care in regard to feeding'.\(^{86}\) Indeed the interest in the fragile newborn encrusted the detail that came to characterise the feeding routines of the 1920s and 1930s, and rules against picking the baby up. Tiny premature babies, prone to infection and sometimes too weak to suck, justified notions of scientific nurture by having to be fed nature's food by the unnatural method of a pipette or tube with a nipple attached. Their need for more frequent feeds than the four-hourly routine, on the other hand, and for ingenuity on the part of attendants, doctors as well as nurses, could well have invited the rise to orthodoxy of more flexible ideas of letting the 'babe take as much as it wants', that would culminate in Dr Spock.\(^{87}\)

Mothercraft also addressed the need to retain the premature infant's body temperature within specified limits, in hospital or at home. In the

\(^{85}\)Maidment, letter, 9 Jun 1987; there is a photograph of this practice, in Aplin, Foster and McKernan (eds), Australians: A Historical Dictionary, p.75

\(^{86}\)RCH, Evidence of Mayo, 14 May 1925, q.13649

\(^{87}\)A.P. Derham, 'Lectures to Nurses on Infant Feeding', Children's Hospital, Carlton, 1931, A.P. Derham Papers, 5/2/1; J. F. Sinclair, 'The Problem of the Premature Infant', Archives of Pediatrics, vol 37, 1920, pp.141-2
proverbial standard treatment the baby was wrapped in cotton wool and its
cot or basket kept warm with hot water bottles. Matron L.E. Nesbitt of the
Presbyterian Babies' Home in East Melbourne designed a cotton wool jacket
and cap to maintain the baby's body heat in the 1930s, that the tiny infant
wore in its standard issue cane, or new electric Queen Charlotte cot.88 Mary
Truby King cited her father's identical rules for the care of the premature
baby at home, in a cotton wool, flannel and brown paper-lined version of
the Truby King cot or basket.89 Wrapping the baby up in practice was hardly
different where midwives had recourse to traditional methods at home; one
of Mrs Noreen Shirt's brothers, the sixth of seven children, was born six
weeks premature in Lithgow, New South Wales, in the winter cold. The
midwife, her great-aunt, 'oiled him and wrapped him in cotton wool and
red flannel strips. He was kept in the one room with an open fire constantly
alight for six weeks. He is a strapping near six footer.90 Presumably it
would have been difficult for a family in a cottage or terrace to set aside a
room and to maintain that room at a steady temperature suitable for the
baby; though clearly some managed using electric heaters or the fireplace,
the premature baby from a poor home had, or could have, its physical, if not
its emotional needs met more readily in a separate heated room or ward in
an institution. Again the waning of infant diarrhoea allowed this
development by overcoming scruples about the dangers of crowding delicate
babies together.

By 1926 some specialists were already decrying the hot water bottle and

88Derham Papers, 5/2/1, 'Notes on the Care and Feeding of the Premature Infant', Lecture 7,
1931. The Presbyterian Babies' Home was donated two electric cots on its opening in 1929,
First Annual Report, 1928-9, p.22
89Mary Truby King, Mothercraft, Sydney, 1944, pp.207-8; M. Harper detailed the standard
treatment at the Tresillian mothercraft training school, of breast feeding, warmth and
isolation from infection, in 'Causation and Prevention of Mortality During the First Month of
Life', MJA, 20 Feb 1926, pp.207-11; C.E. Card, Lectures in Mothercraft [1935], Exercise Books,
Foundling Hospital and Infants' Home, Berry St, East Melbourne
90Shirt, letter, 1 Jun 1987
clothes basket routine as 'old fashioned'. But hospital shortages of cash ensured that cotton wool only gradually gave way to the incubator, (no longer the deathly invention that it had been in 1887), of which Tresillian Petersham had none and the Greycliffe hospital for babies one in the 1920s. Mothercraft homes and maternity hospitals added prematurity wards in the 1930s, while the Tresillian home at Petersham opened a special department in the 1920s, as if to acknowledge that the causes of death had changed. The Greycliffe mansion (Lady Edeline hospital for babies), rendered redundant as a gastroenteritis hospital, was transformed in 1935 into Sydney's third, and most socially desirable, officially recognised mothercraft home - Tresillian Vaucluse.

These developments made little difference to the chances of viable life for a normal full-term baby whose mother had had no complications. They made a difference, however, for the premature, because even more so than for the normal baby, for the premature infant breast feeding was vital. Yet these babies were born often before their own mothers had begun to produce milk, which called for the services of a wet nurse or the spare supply of other mothers, a source most readily available in a mothercraft home, or in a maternity hospital where nursing mothers were gathered. At the Royal Hospital for Women, low birth weight infants were no longer sent home with their mothers on the ninth or tenth day, but kept until they had gained weight and their mother's milk was established. Results before and after the opening of the mothercraft department showed an improvement in premature babies' survival rates, from little more than half in 1924-5 to over 70 and 80 per cent in 1927-8 (the calculations are Harper's in Table 18).

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91 Hipsley, 'Stillbirths and Early Infantile Mortality', p.206
92 Smith, The People's Health, p.128, note 7
93 Discussion, MJA, 20 Feb 1926, p.225
94 See, for example, Hipsley, 'Stillbirths and Early Infantile Mortality', p.206
Table 18  Deaths of Premature Babies at the Royal Hospital for Women, Paddington, 1924-1928

A. Before the establishment of the Mothercraft Department

<table>
<thead>
<tr>
<th>Year</th>
<th>Weight</th>
<th>Survived</th>
<th>Died</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1924</td>
<td>0.45-0.90 kg (1-2 lbs)</td>
<td>0</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>0.90-1.35 kg (2-3 lbs)</td>
<td>2</td>
<td>9</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>1.35-1.80 kg (3-4 lbs)</td>
<td>7</td>
<td>13</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>1.80-2.25 kg (4-5 lbs)</td>
<td>19</td>
<td>11</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>2.25-2.70 kg (5-6 lbs)</td>
<td>24</td>
<td>5</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>52</strong></td>
<td><strong>42</strong></td>
<td><strong>94</strong></td>
</tr>
</tbody>
</table>

1925

<table>
<thead>
<tr>
<th>Year</th>
<th>Weight</th>
<th>Survived</th>
<th>Died</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.45-0.90 kg (1-2 lbs)</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>0.90-1.35 kg (2-3 lbs)</td>
<td>0</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>1.35-1.80 kg (3-4 lbs)</td>
<td>11</td>
<td>7</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>1.80-2.25 kg (4-5 lbs)</td>
<td>11</td>
<td>14</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>2.25-2.70 kg (5-6 lbs)</td>
<td>23</td>
<td>7</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>45</strong></td>
<td><strong>31</strong></td>
<td><strong>76</strong></td>
</tr>
</tbody>
</table>

In 1924 55.3% survived, in 1925 58.3%

B. After the establishment of the Mothercraft Department

<table>
<thead>
<tr>
<th>Year</th>
<th>Weight</th>
<th>Survived</th>
<th>Died</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1927</td>
<td>0.45-0.90 kg (1-2 lbs)</td>
<td>0</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>0.90-1.35 kg (2-3 lbs)</td>
<td>4</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>1.35-1.80 kg (3-4 lbs)</td>
<td>19</td>
<td>5</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>1.80-2.25 kg (4-5 lbs)</td>
<td>34</td>
<td>5</td>
<td>39</td>
</tr>
<tr>
<td></td>
<td>2.25-2.70 kg (5-6 lbs)</td>
<td>29</td>
<td>2</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>86</strong></td>
<td><strong>19</strong></td>
<td><strong>105</strong></td>
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</tbody>
</table>

1928

<table>
<thead>
<tr>
<th>Year</th>
<th>Weight</th>
<th>Survived</th>
<th>Died</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.45-0.90 kg (1-2 lbs)</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>0.90-1.35 kg (2-3 lbs)</td>
<td>2</td>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>1.35-1.80 kg (3-4 lbs)</td>
<td>11</td>
<td>13</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>1.80-2.25 kg (4-5 lbs)</td>
<td>32</td>
<td>2</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td>2.25-2.70 kg (5-6 lbs)</td>
<td>37</td>
<td>5</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>82</strong></td>
<td><strong>31</strong></td>
<td><strong>113</strong></td>
</tr>
</tbody>
</table>

In 1927 81.9% survived, in 1928 72.5%

Source: P.L. Hipsley, 'Natal and Neonatal Mortality and Morbidity', TAMC, 1929, Tables I & II, p.93, tables provided by Dr Margaret Harper

More babies above two pounds in weight were surviving, the greatest
improvement being in the 4-5 pound range; below two pounds they died. Tresillian had similar success with babies admitted immediately after birth. More babies weighing less than four, then three, and then less than two pounds at birth, who once would have died, were surviving, repudiating eugenist assertions of weaklingness. A 1 lb 12 oz, under 14 inch baby admitted to Tresillian in 1940 would in the 1920s not have been considered viable, while another waif the same size, born two months prematurely, admitted to Matron Nesbitt’s care as early as 1933 grew to full health on a teaspoon of food fed by dropper at two-hourly intervals. People began to expect the offspring of multiple births, commonly premature, to live. (Dr Vera Scantlebury Brown had herself been a premature twin in 1889, the other being stillborn.) One mother of seven children born in four and a half years was grateful to have her triplets spend three months at the Tweddle Hospital. Doctors and nurses could do more for these babies as the technology became available, and it was here that the mothercraft hospitals and training schools made a strong contribution. It is remarkable how many babies lived given the rarity of electric cots, and the enforced popularity of the traditional cotton wool treatment. The story of the premature and low birth weight baby conveys the lesson that simple procedures long known, when practised, saved lives.

The bush hospitals and nursing centres exemplified midwife efficiencies. They were the exception amid the general neglect to apply aseptic principles in private hospitals. The bush centres were run by a bush nurse, who was both a registered midwife and infant welfare nurse, and financed on a cooperative basis by rural families who paid 30 shillings a year. For an extra 30 shillings the bush nurse would attend a birth. So,

95 RSWMB, Annual Reports, 1932-3, p.5, 1936-7, p.4, 1940-1, p.16; Presbyterian Babies’ Home Quarterly, vol 1, no 3, Jul 1933
96 On multiple births see Vamplew (ed), Australians: Historical Statistics, p.52
97 SHWC of Vic, Annual Report, 1942-3, p.10
increasingly, would a doctor, who if he encountered difficulties while at a Victorian bush hospital could consult Marshall Allan by telephone in Melbourne.\footnote{In Victoria, doctor attendance more than doubled in a decade as more of the new hospitals were built, from 43 per cent in 1922-3 to 96 per cent in 1933-4. All bush nurses were registered midwives. At first, like their profession as a whole, not all were trained, but this was soon remedied by the Edward Wilson (Argus) Trust, which paid nurses a £50 salary while they completed their midwifery training, VBNA, Annual Reports; about half of the midwives registered in Victoria in the mid-1920s were trained, Marshall Allan, 'Interim Report on Maternal Mortality and Morbidity', p.6}

In Australia, the bush nurses and nursing hospitals set exemplary low rates of perinatal and maternal mortality, though not as low as the St Helens hospitals in New Zealand, where midwives attended all normal births. Throughout the 1920s and 1930s, the Victorian Bush Nursing Association recorded an average maternal mortality rate of 2 per 1000 and a neonatal mortality rate that was approximately half the state average: 15 as opposed to 30 for Victoria during the decade 1922-32, and 13.6 as against 26.8 between 1929 and 1942.\footnote{J.W. Barrett, 'The Halford Oration', p.13, reprinted from MJA, 10 Dec 1932; Argus, 27 Sep 1941, Herald, 28 Jul 1942, J.W. Barrett Papers, Box 1, Medicine - articles, and Newscuttings, pp.31, 62} Perinatal rates for individual years were as follows:

**Table 19 Victoria and Victorian Bush Nursing Association Stillbirth and Neonatal Death Rates, 1927-1945**

<table>
<thead>
<tr>
<th>Year</th>
<th>Stillbirths</th>
<th>Neonatal Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>VBNA</td>
<td>VIC</td>
</tr>
<tr>
<td>1927-8</td>
<td>17.67</td>
<td>30</td>
</tr>
<tr>
<td>1932-3</td>
<td>23.31</td>
<td>30</td>
</tr>
<tr>
<td>1935-6</td>
<td>18.86</td>
<td>31.2</td>
</tr>
<tr>
<td>1936-7</td>
<td>20.62</td>
<td>30.4</td>
</tr>
<tr>
<td>1938-9</td>
<td>26.1</td>
<td>27.0</td>
</tr>
<tr>
<td>1944-5</td>
<td>16.3</td>
<td>26.4</td>
</tr>
</tbody>
</table>

Source: VBNA, Annual Reports

Such results are all the more noteworthy since economic practicalities...
demanded that these small hospitals be 'mixed' (that is, they admitted surgical and general as well as maternity patients); while a doctor, whose practice was mixed by definition, usually attended. They suggest good practice, including a good aseptic technique.\textsuperscript{100} This might explain the Association's low maternal mortality rate, but other procedures must have been superior to those found in ordinary medical practice to explain the low rate of perinatal mortality. One was the nurse, who as a trained midwife, probably set the example for country practitioners to follow, another the level of cooperation between nurse, doctor and patient, which had to be effective for a district to afford its nurse and in many cases a new cottage hospital in the 1920s and 1930s.

Clearly, the statistical and medical evidence implicates poor practice as a reason for undiminished perinatal mortality, and good practice in improved mortality rates. There is, however, one more item to be contemplated in reaching a conclusion: that of mothers' health. A minority of practitioners were alert to the distress that tired mothers faced in birth as in child rearing, and pondered the influence of maternal nutrition on infant mortality. Dr Alfred Jefferis Turner compared neonatal death rates in Brisbane and Adelaide in 1932-6 and found that in Queensland a deficiency of milk, with its component of calcium, was the most important cause of malnutrition in women. In the Depression, the South Australian government had supplied milk rations to the unemployed. Jefferis Turner argued that this explained the improved neonatal death rate in South Australia.\textsuperscript{101} But South Australia had always, with the exception of the early 1920s, had a lower average neonatal mortality rate than Queensland. Allowing for this difference in level, Jefferis Turner's argument is supported nonetheless

\textsuperscript{100}Mein Smith, \textit{Maternity in Dispute}, pp.61-4
because the disparity widened sharply in the Depression, from 27 per 1000 live births in South Australia and 28 in Queensland in 1926-30 to 23 and 28 in 1931-5, after which the gap narrowed, to 21 and 24 by 1941-5. The New South Wales and Victorian governments also supplied milk. Their neonatal mortality rates, too, dropped in the Depression, rendering Turner's case more convincing (see Table 3). Yet medical measurements of mothers' requirements in pregnancy were by present standards inadequate - only in the Second World War did medical authorities advocate vitamins, as well as calcium and iron - and as in the case of babies, relatively few mothers appeared to benefit from the rations.102

In 1939, Dr Hilda Kincaid, Medical Officer in Charge of Child Welfare in the City of Melbourne, compared the neonatal and post-neonatal mortality rates among babies born in selected Melbourne working-class and middle-class suburbs over the previous six years to establish the importance of standards of living, including nutrition, and found surprisingly little relationship between living conditions and first month mortality rates (Table 20). On the other hand, the post-neonatal death rate in the inner suburbs was more than double the rate among the better housed. We may concur with Kincaid that the difference of seven per cent between the poor and the wealthier was significant, in that it showed that socio-economic differences played some part. This evidence supports the argument implicit elsewhere, that the mortality of the newborn was determined by a balance of factors, of which the most important was the association of poverty with low birth weight; the quality of the birth attendant was another. In drawing further conclusions about the relative influence of care in childbirth and the baby's environment it would be useful to know what proportion of the first month mortality in Melbourne was late neonatal, that is between one and

102 Barbara Meredith, 'Ante-Natal Care', HB, no 82, Jan-Jun 1945, pp.2204-10
four weeks, and what proportion under one week. For Australia as a whole, the neonatal rate was recorded as 26 deaths per 1000 live births in 1936-40, the same rate as in the residential suburbs of Melbourne in 1934-9, and 82 per cent of this comprised first week mortality. This suggests that the quality of obstetric care was significant. If the seven per cent difference recorded in the rates in inner and outer Melbourne suburbs was explained by later neonatal mortality, where environmental components predominated, then it is all the more striking that the mothers of the inner city were receiving care in childbirth of sufficient calibre to cancel out some of the disparities in living standards between poorer women and women in wealthier suburbs. At minimum the quality of clinical care does not appear to have been directly affected by the baby's, and mother's, socio-economic circumstances except, we may speculate, beyond some extreme point. Rather, it appears that midwives at the Women's Hospital in Carlton and in the service of the Melbourne District Nursing Society, whose headquarters and after-care home were in Collingwood, contributed to keeping neonatal rates down in inner Melbourne in the 1930s. This was achieved despite Collingwood's relatively high post-neonatal death rate. Women from residential suburbs were probably better nourished and less fatigued than working-class mothers in poor areas, but the excess that they paid for private medical attendance, thankful that they were not objects of charity, did not give their babies a great survival advantage in their first month of life.

103 Young and Ruzicka, 'Mortality', in UN ESCAP, Population of Australia, vol 1, Table 95, p.164
104 This argument is in agreement with that of Loudon's on maternal mortality, in 'Deaths in Childbed', p.40
105 Mrs Nancy Parker reported that women who entered private hospitals considered themselves lucky that they were not objects of charity and believed that they paid for superior care, Parker, letter, 9 Jun 1987
### Table 20  
**Infant Mortality, Melbourne Suburbs, 1934-1939**

#### A. Inner Industrial Areas

<table>
<thead>
<tr>
<th>Suburb</th>
<th>No. of births in 6 yrs</th>
<th>Avge. birth rate for 6 yrs</th>
<th>No. of deaths &lt; 1 mth.</th>
<th>No. of deaths 1 mth. - 1 yr.</th>
<th>Neonatal death rate</th>
<th>Post-neonatal death rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melbourne</td>
<td>6805</td>
<td>12.62</td>
<td>183</td>
<td>124</td>
<td>26.8</td>
<td>18.2</td>
</tr>
<tr>
<td>Collingwood</td>
<td>2916</td>
<td>16.23</td>
<td>77</td>
<td>84</td>
<td>26.0</td>
<td>28.8</td>
</tr>
<tr>
<td>Fitzroy</td>
<td>2830</td>
<td>15.43</td>
<td>84</td>
<td>66</td>
<td>29.6</td>
<td>23.3</td>
</tr>
<tr>
<td>Port Melbourne</td>
<td>1159</td>
<td>15.53</td>
<td>35</td>
<td>17</td>
<td>30.1</td>
<td>14.4</td>
</tr>
<tr>
<td>Richmond</td>
<td>3576</td>
<td>15.10</td>
<td>88</td>
<td>62</td>
<td>24.6</td>
<td>17.3</td>
</tr>
<tr>
<td>South Melbourne</td>
<td>3329</td>
<td>13.02</td>
<td>108</td>
<td>67</td>
<td>32.4</td>
<td>20.1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>20615</strong></td>
<td><strong>13.76</strong></td>
<td><strong>575</strong></td>
<td><strong>420</strong></td>
<td><strong>27.8</strong></td>
<td><strong>20.3</strong></td>
</tr>
</tbody>
</table>

#### B. Outer Residential Areas

<table>
<thead>
<tr>
<th>Suburb</th>
<th>No. of births in 6 yrs</th>
<th>Avge. birth rate for 6 yrs</th>
<th>No. of deaths &lt; 1 mth.</th>
<th>No. of deaths 1 mth. - 1 yr.</th>
<th>Neonatal death rate</th>
<th>Post-neonatal death rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Camberwell</td>
<td>5052</td>
<td>15.04</td>
<td>134</td>
<td>31</td>
<td>26.5</td>
<td>6.1</td>
</tr>
<tr>
<td>Box Hill</td>
<td>1360</td>
<td>14.70</td>
<td>36</td>
<td>17</td>
<td>26.5</td>
<td>12.5</td>
</tr>
<tr>
<td>Kew</td>
<td>1814</td>
<td>12.10</td>
<td>39</td>
<td>14</td>
<td>21.5</td>
<td>7.7</td>
</tr>
<tr>
<td>Malvern</td>
<td>2944</td>
<td>11.02</td>
<td>69</td>
<td>24</td>
<td>23.4</td>
<td>8.1</td>
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<tr>
<td>Essendon</td>
<td>3694</td>
<td>12.91</td>
<td>94</td>
<td>52</td>
<td>25.1</td>
<td>14.0</td>
</tr>
<tr>
<td>Brighton</td>
<td>2234</td>
<td>12.39</td>
<td>61</td>
<td>12</td>
<td>26.0</td>
<td>5.1</td>
</tr>
<tr>
<td>St Kilda</td>
<td>3250</td>
<td>10.95</td>
<td>99</td>
<td>35</td>
<td>30.4</td>
<td>10.8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>20458</strong></td>
<td><strong>12.58</strong></td>
<td><strong>532</strong></td>
<td><strong>185</strong></td>
<td><strong>26.00</strong></td>
<td><strong>9.04</strong></td>
</tr>
</tbody>
</table>


Mothers and babies in the late 1930s and in the war years experienced the marked downturns in maternal and perinatal mortality. The latter followed a different course from the former; maternal mortality plummeted internationally after 1935, though New Zealand registered an earlier decline, before the sulphonamide drugs, I have argued due to the spread of asepsis.
methods. In Australia, the breakthrough in newborn mortality came during the war, as Figure 16 shows. Stillbirths followed the same trend of wartime improvement. This suggests that a cluster of factors came together, and reinforced by wartime conditions, pushed rates down. The mothers of these babies were themselves beneficiaries of reduced infant mortality. They were healthier than previous generations and Australians were eating better than ever before. Food rationing helped after its introduction in 1942. Throughout the war food was in plentiful supply and mothers and babies were accorded special treatment; expectant and nursing mothers were given oranges by their infant welfare sisters. Certainly none suffered from the wartime organisation. Indeed, F.W. Clements has argued that American servicemen influenced Australian food habits by demanding fresh vegetables and fruit. These healthier mothers, moreover, saved themselves from the hazards of unspaced births and childbirth at older ages by limiting their families to two, three, or four. While the proportion of first births was increasing and first births were allegedly more dangerous than subsequent deliveries (the proportion of first live births to total births increased in New South Wales from 21 per cent in 1896-1900 to 39 per cent by 1941-5), the fall in the birth rate until 1934 reduced the overall risks. The gradual decline in neonatal mortality from the 1880s to about 1940 and the sharp fall during the war, then, can be attributed most of all to better health consequent on reduced mortality of earlier decades and to people's own decisions to have fewer babies, and the greater regard shown to mothers and infants. The last was probably sharpened by conflict. More

106 Mein Smith, Maternity in Dispute
Heather Beresford added that although people were frightened, 'the basic foods were plentiful', questionnaire, Aug 1988
109 NSW Official Year Book, 1945-6, p.67
precise conclusions require more precise data. But it does appear that these
trends were reinforced by improved practice, both in the delivery room and
the hospital nursery, where the premature baby benefited despite the
problems that regimented rules presented for uncomplicated breast feeding.
CHAPTER 9
CHILDREN - 1 - 5 YEARS

Young children, as did babies, enjoyed improved survival chances. This transformation came about in a number of ways. The waning of diarrhoea contributed most to the mortality decline in this age group, as among babies, the proportion of deaths due to diarrhoeal diseases falling at a faster rate than deaths from the other infectious diseases of childhood, such as diphtheria, pneumonia and measles. As the birth rate fell children under five comprised an ever diminishing percentage of the population, while life chances improved. The numbers of children who survived to their third birthday rose steadily with the changed mortality pattern, as Figure 18 shows. By 1945, death rates in young children were one-third the level of the early 1920s. The proportion of all deaths that occurred in children aged from one to four declined from 6 per cent early in the century to under 2 per cent by the 1940s, at the same time that the contribution of infants to the total death toll declined from 20 per cent to 7 per cent (see Tables 2 and 21). Most non-Aboriginal Australians died in later adult life, 55 per cent over the age of 65, demonstrating how the human life span, for these Australians, had lengthened.

Children’s health had improved despite the prognostications of social hygienists. In Victorian school pupils, the incidence of below standard nutrition had halved compared with a generation earlier. Indeed, the falls in infant mortality and fertility had revolutionary outcomes for young children. The generation born in the late 1930s and in the Second World War, that provided the first attenders at the Lady Gowrie Child Centres, and

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1Young and Ruzicka, in UN ESCAP, Population of Australia, vol 1, pp.167, 169
2Between 1911-15 and 1937 the incidence of poor nutrition had fallen from 10 to 5 per cent, Harvey Sutton, School of Public Health and Tropical Medicine to Director-General of Health, 8 Jan 1937, AA CRS A1928, Item 155/1 sect 1
Figure 18
Survivors to Age Three, 1909-1961

Number of Survivors to Age 3 Years, Before and After Adjustment for Epidemics in Early Childhood,
for Cohorts with Birth Years from 1909-11 to 1960-2

Survivors from 100,000 at Birth (000)

whose parents and grandparents were the first to benefit from the retreat of the infectious diseases of childhood, notably diarrhoea, belonged to smaller families, whose fewness increased their worth; they were possibly the best cared for and at least as well cherished as children had ever been. Doctors and infant welfare sisters rarely saw unwashed or malnourished babies.\(^3\) As living standards improved, and as family size diminished to half the level of two generations earlier, parents had more money and time to devote to their offspring. To apply Caldwell's theory of wealth flows, the inter-generational flows of investment, material and emotional, now travelled from the old to the young.

**Table 21  Mortality in Children - 1 - 4 Years**

*Australia, 1920-1954*

<table>
<thead>
<tr>
<th>Years</th>
<th>Boys</th>
<th>Girls</th>
</tr>
</thead>
<tbody>
<tr>
<td>1920-24</td>
<td>603.7</td>
<td>506.9</td>
</tr>
<tr>
<td>1925-29</td>
<td>513.2</td>
<td>446.9</td>
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<td>1930-34</td>
<td>421.7</td>
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<td>1935-39</td>
<td>372.9</td>
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</tr>
<tr>
<td>1940-44</td>
<td>337.4</td>
<td>281.9</td>
</tr>
<tr>
<td>1945-49</td>
<td>203.2</td>
<td>165.3</td>
</tr>
<tr>
<td>1950-54</td>
<td>177.9</td>
<td>143.8</td>
</tr>
</tbody>
</table>


Medical and welfare professionals capitalised on this opportunity to instruct parents in nurture. Convinced that they had to stem the 'rising tide of degeneracy',\(^4\) they set about building a chain of services to supervise children's health from conception to the end of schooling. The ultimate goal, Dr J.H.L. Cumpston, the Director-General of Health, averred in 1925, was complete supervision, and thus complete health records, kept by his

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\(^3\)City of Melbourne, *Report of MOH*, 1938, CMCP, 1938-9, p.486  
\(^4\)Quotation from Jones, *Social Hygiene in Twentieth Century Britain*, p.45
new Australian Department of Health, from birth to military age.\(^5\) This demanded an extension of infant welfare to children from two to five, because centre nurses did not see children after their second birthday — indeed, often not after they turned one. Unsupervised, the young child allegedly slipped back into a poor state of nutrition. As diarrhoeal mortality was surpassed by the respiratory infections, health officials also raised the alarm about defects of nose and throat and teeth. They were worried about diphtheria which, while it attacked especially children of school age, was most fatal in children under five. At different counts in the 1920s and 1930s, more than half of the deaths from diphtheria occurred in children between two and five, and 60 per cent in the first five years of life. Health authorities agreed that the hiatus between infancy and school should be closed by allowing baby health centres to oversee children from two to five years old.\(^6\) The term 'pre-school', encompassing the ages from two to six, was invented to bridge this gap between the baby health centre and the school doctor's round.\(^7\) Mothercraft broadened, at least in theory from the 1920s, to include the pre-school child.

David Armstrong has argued that through the discipline of the survey, practised by infant welfare centres and services - the study of the normal child, and deviations from the normal - the boundary between abnormality and normality weakened, so that the normal child and not just the sick child came to be perceived as a problem. Consequently, from the Second World War the new specialty of paediatrics altered its focus from disease to child

\(^5\)RCH, Evidence of J.H.L. Cumpston, where he answered in the affirmative a question by F.S. Hone, 10 Feb 1925, q.2012. The best source on Cumpston and his conservative social theory is Roe, *Nine Australian Progressives*, chap 5


\(^7\)Christine Heinig, 'Education in the Lady Gowrie Child Centres', Australian Institute of Anatomy, *Pre-School Child Bulletin*, vol 2, no 1, Apr 1940, p.3
developmental norms charted on growth curves, and the survey in general 'created the space for the observing gaze of new disciplines.'\(^8\) This interpretation offers insights into why the infant welfare movement expanded its emphasis from infant feeding to the all-round development of the young child - as captured in the change of title of Dr Vera Scantlebury Brown's *Guide*, from *A Guide to Infant Feeding*, to (in 1947) *A Guide to the Care of the Young Child*.\(^9\) Armstrong's thesis, however, is not connected closely enough to the facts of demographic change, of the transitions in fertility and childhood mortality and especially in the infant death rate. I prefer to argue that children had to be healthier and be perceived to be healthier before there could be child development.

This perception was not developed until the 1930s, outside Labor government-directed New South Wales. In Sydney, the Royal Society for the Welfare of Mothers and Babies opened two enormous American-styled welfare centres in 1921 and 1922 in the slums of Woolloomooloo and Surry Hills, each of which contained under one roof a baby clinic, day nursery, kindergarten, playground and milk depot. The Woolloomooloo centre, a Spanish bungalow, cost the Department of Public Health £20000, the Surry Hills centre, in converted terrace housing, £11000, sums which sapped the Royal Society's coffers for a decade.\(^{10}\) In Melbourne, Prahran's Medical Officer of Health, Dr R.H. Fetherston, led the way with his health centre, opened in 1923, at a price of £6500, that provided for pregnant mothers, babies, pre-schoolers, school children and adolescents, and was the first municipal centre in Victoria to offer ante-natal care.\(^{11}\) But these monuments were exceptional.

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\(^{10}\) *Sydney Mail*, 26 Oct 1921; *Sunday Times*, 12 Jun 1922; *RSWMB, Annual Reports*

\(^{11}\) RCH, Evidence of R.H. Fetherston, 12 Feb 1925, qq.2542, 2548
The Depression stirred baby health centres to open their doors to toddlers by the late 1930s, and ladies' committees to raise funds for 'toddler scales', because of the concern about whether young children were properly fed. I have explained how medical interest turned from over feeding to under feeding as diarrhoeal deaths declined, and how this change was reinforced by the Depression. Doctors opposed to low protein feeds for babies found evidence to heighten their alarm about malnutrition in preschoolers, who needed protein for their growth and development. These were the years when the brain reached its full size. The Depression, too, brought vitamins to the fore. This term supplanted 'accessory food factors' once doctors realised that vitamins were essential for health. The '1930s nutrition controversy', as it has become known - the debate over the 'newer knowledge of nutrition' and its implications for subsistence levels at a time of mass unemployment - fixed medical eyes on the one to five year old, who was thought peculiarly susceptible to under feeding. Poor families least of all could afford to buy the 'protective foods', of fresh vegetables, milk and meat. 'The suffering and lack of food ... falling on the innocent mothers and babes', Scantlebury Brown confided to her mother in 1929, 'are really depressing ... I cannot get these poor sufferers out of my mind especially after a visit to the kindergartens.'

The City of Melbourne's child health services inspired Scantlebury Brown's comprehensive Victorian scheme for extending infant welfare to the toddler in the 1930s, by providing 'toddler waiting places' in infant welfare centres, toddler playgrounds and health inspections for the kindergarten child. Her ideas and pamphlets, which poured forth from her

12Christine Heinig, 'Education in the Lady Gowrie Child Centres', Australian Institute of Anatomy, Pre-School Child Bulletin, vol 2, no 1, Apr 1940, p.3
14Scantlebury Brown, Diary B6, 23 Sep 1929, p.5
pen especially during the war, set the example for other states to expand maternal and infant welfare services to children under five.\textsuperscript{15} The City of Melbourne also gave Cumpston his federal Australian model of toddler welfare. Ironically, the infant welfare centres in inner Melbourne, some of the first in Victoria, had to break with the Victorian Baby Health Centres Association and declare their independence under the Melbourne City Council before they could concentrate on the young child, because the Association was insistent into the 1930s that sisters were busy enough checking babies.\textsuperscript{16} Dr John Dale was instrumental in this policy change; he became Medical Officer of Health to the City of Melbourne in 1927. In all probability his views on child development were influenced by his first wife, who was a Montessori kindergartener. This social reformer advised the board of the Eugenics Society of Victoria in the 1930s. A former assistant Medical Officer of Health in Birmingham, he had emigrated to Western Australia in 1920 and as medical officer in Perth he soon urged his profession to 'black list' white bread and sugar and to promote the new knowledge about vitamins.\textsuperscript{17} Dale took to the soapbox in 1929, and from a stall at Victoria Market, a placard above him advertising "Dr Dale's New Bread", he sold for sevenpence to the city's poor their 'daily (Daley) bread', a loaf of wholemeal flour, dried milk and 1 3/4 ounces of butter; and an orange.\textsuperscript{18} His colleague, Dr Hilda Kincaid, found that malnutrition, 'always

\textsuperscript{16}VBHCA, \textit{Minutes}, 31 Mar 1931, 26 Apr 1932, 30 Aug 1932; CMCP\textsuperscript{17}John Dale, 'The Application of the Recent Discoveries concerning Vitamins or Accessory Food Factors', \textit{MJA}, 2 Sep 1922, pp.267-8\textsuperscript{18}Vera Scantlebury Brown joked that this was a 'common' pun, Diary B6, 25 Jul 1929, p.28, 23 Sep 1929, p.4; also \textit{Herald}, 11 Jun 1929, in J.W. Springthorpe, Diary 13. Dale was described by Dr A.E. Wilmot, the first dietician to the Lady Gowrie Child Centres and Victoria's third Director of Maternal, Infant, and Pre-School Welfare, interview, Melbourne, 5 Sep 1985}
a striking feature' in toddlers, frequently began in the second year of life.\textsuperscript{19}

Kincaid's measurements of malnutrition were widely invoked in the cause of toddler welfare. She calculated the proportion of malnourished children aged two to six seen at the City's baby health centres and kindergartens to be 31 per cent in 1928, rising to 38 per cent in 1929 and 37 per cent in 1930. Regrettably there are no figures for the worst years of unemployment, when 29.5 per cent of the city's male workforce were reported out of work. The malnourishment percentages dropped to 26 per cent in 1934, 25 per cent in 1935 and 22 per cent in 1936. At the same time the number of children examined doubled, from perhaps one-fifth of the city's pre-schoolers, to 40 per cent by 1936. Rickets were rare, although Dr Hilda Bull, the City's immunisation officer (who later married Dale), attributed knock knees to rachitic deformities.\textsuperscript{20}

It is impossible to determine whether the fall in malnutrition in Melbourne was real or an artefact of data collection, for in 1934 Kincaid changed the basis of her measurements. Before 1934 she did not disclose the basis of her calculation. Henceforth she adopted the American test of Emerson, in Boston, that a malnourished child was seven per cent or more below standard weight for height. Presumably her earlier basis of measurement demanded a larger variation from the mean, the most likely being ten per cent, as used in New Zealand. If this were so, then the evidence would indicate that malnutrition fell in the City of Melbourne, coincident with the improvement in infant mortality during the worst years of the crisis. If so, then these figures support the thesis popular with officials at the time that through the Depression there was a secular trend towards

improvement in the health of young children. On the other hand, the recorded percentages are consistent with the correlative hypothesis that people's health suffered because of unemployment and that mothers, rather than children, bore the brunt of hardship. It is difficult to reach any conclusions on the basis of these results for the further reason that it is problematic to infer outcomes from a smaller percentage of a larger number of children seen. The evidence does not show irrefutably an absolute improvement in feeding. To double the numbers inspected and drop the percentage undernourished by ten per cent is not enough to establish an argument for falling malnutrition, or better nutrition, in the Depression.

There is, however, evidence to suggest that country children were better off than pre-schoolers in Melbourne's inner suburbs. In 1936-7, Dr F.W. Clements, who as the Director of the Institute of Anatomy in Canberra from 1938 extended its work from the possum to the pre-school child, collected figures for the Advisory Council on Nutrition's survey of Australian food habits. He drove his truck and X-ray plant across South Australia, into the Mallee country and up to the Murray River in Victoria, west through Queensland to Mt Isa and Quilpie and to Bourke in inland New South Wales. If a child's weight fell ten per cent below the ideal weight for age line, Clements classified the child as malnourished. He found 14 per cent of children of unsatisfactory weight in South Australia, 13 per cent in the Mallee, 19 per cent in western Queensland and 24 per cent in rural New South Wales. Because he defined malnutrition differently from Kincaid, these figures are not strictly comparable with those for Melbourne children. To that extent we cannot conclude that country children were better fed.

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21 Thesis and correlative thesis are discussed in Webster, 'Healthy or Hungry Thirties?', pp.110-11  
However, it is reasonable to infer from the lower percentages of children assessed as malnourished that outback children did have an advantage. Rural children themselves could be divided into farming and remote town groups. While those on soldier settlement blocks probably consumed more milk, eggs, meat, and vegetables than city and country township children, many in small towns ate less well and drank tinned milk. Clements' findings confirmed the importance of geography for health, and suspicions that nutritional defects inflicted their heaviest toll in early childhood.

The survey of child health in the Adelaide Hills, conducted by ten local medical practitioners for the National Health and Medical Research Council in 1940-5, provides other useful primary evidence. This study used the standard adopted by the Advisory Council on Nutrition, that is, Clements' standard, whereby 'thin' children were defined as between 11 and 15 per cent below normal weight for height and 'very thin' 16 per cent or more below 'normal'. The survey produced percentages of malnourished children of pre-school and school age that matched Clements' findings in rural Australia: 16 per cent of boys and 26 per cent of girls were 'thin' or 'very thin', or more than 10 per cent below normal weight for height. In the Adelaide Hills the worst malnutrition was in dairying districts and the best fed youngsters lived in apple-growing districts, possibly because children in the latter areas ate more fruit, whereas the children of dairy farmers worked long hard hours and had an 'almost universal dislike for milk'. This again is a reminder of the state of the cowyard and of the milk supply generally. The survey also revealed that the incidence of malnutrition was higher in girls, except in the dairying country. It appears that girls, like their mothers, from their early years did not always obtain their fair share of the

23 These conclusions are based on Clements, A History of Human Nutrition in Australia, pp.102-6
24 C.C. Jungfer, Child Health in a Rural Community. Report of the Work of a Health Survey in the Adelaide Hills District, Canberra, 1944, p.21
family's food resources.25

In the Adelaide Hills during the war, as in Melbourne in the Depression, doctors and health officials asserted that infant welfare centres were useless in raising the standards of health in children unless mothers attended regularly - which they did not in the Hills survey.26 The Depression compelled officials to acknowledge that despite the varying capabilities of mothers, who medical officers judged might 'use small means intelligently with remarkable success', or 'muddle along incompetently whatever their resources', it was often 'economically impossible' for mothers to follow advice about babies or young children, and this partly explained the non-attendance of mothers and children who most needed help.27 Mothers, Kincaid believed, were cooperating better with the centre sisters, but in the Depression she complained that 'lack of intelligence and capability backed by very poor economic conditions' amounted to passive resistance.28 Mothercraft presupposed an economic floor, as her friend Scantlebury Brown recognised when she opened a new centre in North Richmond in 1930: 'It is a beautiful centre but Richmond still has a high deathrate among infants due no doubt to economic conditions ...', the Director of Infant Welfare wrote in her diary, 'so I felt that it was somewhat futile to educate concerning diet and health when whole families are trying to exist on 5/-/wk.29 Children of the casual poor escaped supervision because their families moved, while mothers found attendance at centres

25See also Jungfer, Child Health in a Rural Community. Part 2. A Further Report on the Work of the Adelaide Hills Children's Health Survey, Canberra, 1948, pt VI
26There were only 4 infant welfare centres, 2 introduced by the survey, and yet infant mortality was low. Jungfer, Child Health in a Rural Community, p.39
29Scantlebury Brown, Diary B10, 20 Apr 1930, p.64
difficult and advice impossible to follow. Dale and Kincaid urged that society should help parents handicapped by unemployment, with its associated worry, overcrowding, evictions, bad diet and lack of fuel and utensils. But their vision was limited by their philosophy: unemployment affected the 'less efficient'.\textsuperscript{30} As Jones and Lewis have argued from comparable English evidence, the equation between poverty and ill-health was well recognised, yet notions of maternal inefficiency hardened in the 1930s.\textsuperscript{31}

Health reformers admitted the infant welfare movement's failure to reach the children in whom defects appeared. They found a solution in the nursery school or kindergarten. Their reasoning ignored the paradox that this suggested, namely that infant welfare centres could not protect young children from the damage of deficient diet.\textsuperscript{32} Their response was that if the mother would not bring her child to the infant welfare sister, they would rehouse the child in an ideal world; if the health centre could not transform the child's environment, the nursery school should, by providing 'special housing' for toddlers, a sanctuary of 'warmth and friendliness, toys and games and colours and food and rest'.\textsuperscript{33} The kindergarten child would convey to his or her mother the regimens of healthy living vital for sound future growth. Spearritt has admirably summarised the kindergartens' aspirations to awaken child souls to middle-class morality and order.\textsuperscript{34} This time the models came from Britain and the United States, where emergency nursery schools for children of relief workers sprouted in the Depression.

\textsuperscript{31}Lewis, \textit{Politics of Motherhood}, p.68; Jones, \textit{Social Hygiene in Twentieth Century Britain}, pp.79-81
\textsuperscript{32}cf. on this point Webster, 'Healthy or Hungry Thirties?', p.122
\textsuperscript{34}Spearritt, 'Child Care and Kindergartens in Australia 1890-1975', pp.10-17
The goals of the Melbourne group of innovators, that centred on the child health specialists Dale, Kincaid, Bull, Scantlebury Brown and Campbell and their associates and friends in the kindergarten movement, seemed vindicated by Clements' comparison during 1936-7 of the nutritional states of children attending kindergartens in Sydney with the feeding status of some non-attenders. Of 576 kindergarten children, 15 per cent were below average weight, compared with 33 per cent in a sample of 175 who did not attend. To Clements in January 1938, this difference seemed 'all the more striking' since children who attended came from working-class suburbs, whereas non-attenders lived in both industrial and middle-class suburbs. He attributed the difference to the kindergarten's lunch and cup of milk, particularly the latter; the milk that a child drank, he concluded, 'definitely determined' the child's nutritional state. Fifty years later, Clements believes otherwise: the correlation of milk intake with nutrition, he admits, was statistically insignificant, and the 'family's association with the kindergarten' was the more likely influence.

THE LADY GOWRIE CHILD CENTRES

The Depression, then, fuelled the spread of nursery school ideas, because the toddler was measured to be its greatest victim. In the longer term, these notions depended on better child health. The result was an alliance between the infant welfare movement and nursery schools and kindergartens, united in their purpose, of 'rearing a sound race', in their conviction of rightness and links with secular and church authorities and women's philanthropy. This alliance precipitated the first federal

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35F.W. Clements, 'Some Observations upon the Relationship of Food Intake to Malnutrition in Sydney', draft report forwarded to Harvey Sutton, 12 Jan 1938, pp.15-17, AA CRS A1928, Item 726/3 sect 6
36Clements, A History of Human Nutrition in Australia, p.109
37The quotation is from Christine Heinig's address to Rotary in Hobart on the purpose of preschool training, 1941, cited by Jillian C. Waters, 'To Help the Mothers and Save the Babies: An Episode in Tasmania's Population Debate', BA (Hons) thesis, University of Tasmania, 1983, p.29
initiative into pre-school care: the Lady Gowrie Child Centres.

The policies of these Centres were shaped by two inquiries: the Advisory Council on Nutrition, established by the Federal Government in February 1936, and the National Health and Medical Research Council, which in 1937 found 'serious neglect' in the supervision of toddlers' 'bodily development'. The nutrition inquiry, whose questions derived from the League of Nations, sought to determine whether Australians ate properly and to help farmers by persuading people to eat protective foods. It upheld the Melbourne health officers' work as the model for preventing malnutrition in pre-schoolers.38 The second inquiry, bolstered by the first, and supported by the kindergarten lobby, who were inspired by a visit from British psychiatrist Dr Susan Isaacs, prompted the Government to add £100000 to the federal budget for women and children, especially pre-schoolers.39 Both inquiries were fashioned on international models, though Australia emerged a leader in the plan to boost agriculture and health.40

If we may peg policies to people, then the Government's decision early in 1938 to devote the entire £100000 to six model nursery schools, one in each state capital - the Lady Gowrie Child Centres - owed much to two Australians and one American: to Dr Cumpston, the Director-General of Health; to Dr Vera Scantlebury Brown; and to a visiting educational specialist from the United States, Christine M. Heinig. Heinig, remembered later as 'go-go', was on secondment from Columbia University, New York,

38 The Advisory Council appended their findings to its first report, AA CRS A1928, Item 726/3 sect 1
39 Resolution no 6, Hygiene of Childhood, NHMRC, Minutes, 1st session, Hobart, 1-3 Feb 1937, Health no 131, AA CRS A1928, Item 690/4; Richard Casey, Treasurer, Budget Speech, CPD, vol 154, 27 Aug 1937, p.270; J. Lyons to Premier, SA, 6 Oct 1937, CRS A 1928, Item 726/3 sect 5; also 155/1 sect 2, 155/17/1 sect 1. Susan Isaacs' visit is alluded to by Walker, 'The Development of Kindergartens in Australia', p.293
40 See, for example, Mayhew, 'The 1930s Nutrition Controversy', p.456. The Advisory Council on Nutrition reported that Australia deserved the credit for the worldwide preoccupation with food in the Depression because the Prime Minister Joseph Lyons pleaded the issue before the Pope. Cwlth Enquiry into Problems of Nutrition, 1st meeting, 17 Apr 1936, AA, CRS A1928, Items 726/3 sect 1, 726/5 sect 2
for two years from March 1937 as principal of Melbourne's Kindergarten Training College. It was no accident that John Dewey, the famous pragmatist philosopher who was hugely influential for his conception of education as experience, or growth, taught at Columbia Teachers' College until 1930. Heinig championed Dewey's hope for the school as an ideal society in her role as a pioneer of the first nursery school in the United States to operate as part of a public school system. This child development authority was rumoured, according to a former Lady Gowrie Child Centre Director, to have sat on politicians' knees to win what she wanted.

Though by no means solely responsible for the Centres, this trio personified their intellectual origins in the forces that directed attention at the young child in the path of the health transition. Cumpston, who chaired both the federal inquiries and was a central figure in the national efficiency movement, embodied concern about under feeding in the Depression; Scantlebury Brown, infant welfare, which she was busy expanding to the pre-school child with toddlers' scales, wooden toys and sandpits, as her own children grew (she organised a pre-school for her two children and their friends in the 1930s); while Heinig, who arrived laden with 600 books, literally transported to Australia the American nursery school.

Usually Scantlebury Brown is credited with the idea for a model pre-school centre. It is not generally known, however, that Cumpston solicited her memorandum proposing a model nursery kindergarten in 1937 when he asked the states how they would spend the money. Scantlebury Brown herself credited the notion and the new term, child development

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42I. Broinowski, interview with Mary Gibson, Sep 1985; Biographical Sketch, American Association of University Women, both courtesy of AECA
43*Reports of the Director of Infant Welfare; FKU of Vic, Annual Report, 1936-7*, p.36
44For example, Reiger, 'Vera Scantlebury Brown: Professional Mother', in Lake and Kelly (eds), *Double Time*, chap 31
centre, to Melbourne's kindergarteners. This is not to deny Scantlebury Brown's prowess in initiative-taking, nor her leadership in broadening infant welfare to the pre-schooler; rather her proposal for a model centre in Melbourne exemplifies how she always seemed to have the right idea at the right time and enthused others to act. Her friend Heinig supplied her plan, while dealing separately with Cumpston, and drafted, with Cumpston, the Centres' specifications, later developed by the Melbourne Kindergarten Union's architect. As the first Federal Officer to the Association for Pre-School Child Development, formed by the Kindergarten Unions in 1938, Heinig wrote the Centres' educational programme. Clements drew the health charts.

Infant welfare centre, nursery school and kindergarten met in the Lady Gowrie Child Centres. The first of these 'shopfronts' for pre-school care in Australia opened in Melbourne in December 1939, on Melbourne City Council land, a new infant welfare centre beside it. One in each of the other state capitals followed in 1940, for the children of Spring Hill in Brisbane, Thebarton in Adelaide, Perth's Victoria Park, Erskineville and Alexandria in Sydney, and Battery Point and Sandy Bay in Hobart: all working-class or mixed suburbs, with higher densities and poorer housing, where families' incomes varied about the basic wage. The Lady Gowrie Child Centres, true

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45 AA CRS A 1928, Items 155/1 sects 2 & 3, 155/17/1 sect 1; Scantlebury Brown's memorandum of 8 Oct 1937, which took its title 'Requirements for Adequate Supervision of Bodily Development of Children Before School Age' from the NHMRC resolution and thereby directly addressed Cumpston's query, was published in the Reports of the NHMRC, 3rd session, Sydney, 12-13 Nov 1937, pp.35-9, and as an appendix to the Report of the Director of Infant Welfare, 1936-7. Scantlebury Brown opted for the term 'child development centre' in a subsequent memorandum, Scantlebury to CHO, Vic, 20 Dec 1937. This listed her Melbourne group of friends and colleagues. She attached KTC building requirements for a demonstration nursery school, 11 Dec 1937

46 AA CRS A1928, Items 155/1 sect 3, 155/17/1 sect 1. The architect was Marcus Martin.

47 AA CRS A1928, Item 155/17/1 sect 1

48 Incomes in 1940-1 ranged from £3/12/0 a week in Brisbane to £4/13/0 in Melbourne and Perth. In 1941 the reported basic wage was £4/9/0 in Queensland and £4/8/0 in Perth. Christine Heinig, 1st Annual Report, 1941, AA CRS A1928, Item 155/17/1 sect 3; Commonwealth Year Book, 1944-5, pp.426-7
to the policy of the first baby health centres and kindergartens, were sited in suburbs assumed detrimental to healthy growth. The Adelaide Centre, in Thebarton, was literally on the wrong side of the railway tracks; the North Carlton Centre, though in a more mixed area, was intended to take children from working-class Fitzroy, while the Sydney Centre was built on the new Erskineville housing estate. The Centres, like their forerunners in infant welfare, bore the name of the Governor-General's wife, Lady Gowrie, a grandmother (her only son was killed in the war), who took a personal interest.

It is significant that the Centres were health centres first, with a doctor and infant welfare nurse to inspect the children, and only second model demonstration pre-schools, with a social worker (a new profession in 1940) and a Montessori-styled directress who had been to kindergarten college. Although run by the Australian Association for Pre-School Child Development, the new national kindergarten body, the Centres' first task was to plot the growth curves of Australian-born children; consequently, the Federal Department of Health funded them for the first five years. It was not simply that Australian nationalism decreed that American sizes and shapes were inappropriate to use in height and weight charts for the young Australian (just as Pritchard's and Truby King's means provided the initial growth curves for the baby); the toddler could not become a measurable object until a pool of eligible children came under supervision at the Centres. Kindergartens and baby health centres could not do the work because few toddlers attended in the 1930s; there were 50 free kindergartens, at least, throughout Australia, but as late as 1944, of the 500000 non-Aboriginal children aged two to six, a mere one per cent attended

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49Lady Gowrie declared herself a Truby King disciple. Truby King League of Vic, Annual Report, 1940-1, p.5, 1941-2, p.4. Spearritt also observed that the Lady Gowrie Centres 'were not a complete break from ... traditions', in 'Child Care and Kindergartens in Australia', p.22
kindergartens. Only in that year, too, did pre-school care come under the Victorian Health Department. It was the search for an Australian standard for the pre-school child that ordered the selection of children for the Lady Gowrie Child Centres: 100 children each, aged two to six, as many as possible Australian-born, of Australian-born parents.

In the wake of the Depression, then, the toddler became the latest target for anthropometry. Herein lay a problem. As Armstrong has declared, paediatricians with a 'new perception of the child, as a figure within the social domain', realised that child development was important, and yet they lacked data on normal children: '... the greatest ignorance was of normal growth and development.' This preoccupation with the normal child immediately suggests that the abnormal, the sick and dying had become less commonplace. The new edict of child development, physical, mental, social and emotional, presumed that health chances were already more promising. In Australia, the Lady Gowrie children were chosen to supply the measure of normality. They passed the first test, of Australianness - only 14 of the 1289 children who attended in the first four years were born overseas - but as principally working-class children, they were of below average rather than average weight and stature, and thus non-standard. This discrepancy between means and end, that arose from measuring the lower classes to chart the 'average' child, did not go unnoticed by contemporaries; it was invoked to explain why states of nutrition in these children, contrary to expectations, deteriorated: a mere 76 proceeded from 'fair' to 'good' on mid-morning milk and rusks, and midday dinners of minced steak, liver,
vegetables, baked custard and stewed fruit, or Oslo lunches of wholemeal bread with peanut butter and Vegemite.\textsuperscript{53}

Varying but arbitrary definitions of 'normality' derived from an altered health standard. In the 1920s, Truby King thundered the virtues of 'Nature's infallible average' enshrined in his feeding tables. The Lady Gowrie Child Centres, on the other hand, imbued with new confidence that science could better nature, set out to provide what Scantlebury Brown described as the 'optimum diet' for 'full development of the individual ... and for the prevention of latent states of malnutrition', a League of Nations, post-Depression standard.\textsuperscript{54} The optimum had become the norm. Webster and Mayhew have described how, in Britain, the use of an 'optimum' as opposed to minimum standard of nutrition magnified the problems of food deficiency and the percentages of children who were ill-nourished.\textsuperscript{55} Ironically, in practice the puniest of children could not eat or drink that much.

To beholders bent on the optimal the Lady Gowrie children's health record seemed grim. Of those who attended during the war, 26 per cent were of unsatisfactory weight, nearly half suffered from inflamed tonsils and even more had bad teeth: 70 per cent of five year olds at the Melbourne Gowrie, the only centre with a dental clinic next door, had dental caries. The children had to be immunised against diphtheria to enrol and the majority of children at the Adelaide Centre were vaccinated against whooping cough; but still respiratory illness proved the biggest problem, and produced an absentee rate of 20 per cent.\textsuperscript{56} Heinig deplored the children's health record as 'exceedingly bad', to the cost of the health of staff, who succumbed to colds.

\textsuperscript{53}Clements and MacPherson, \textit{The Health Record}, p.23
\textsuperscript{54}Vera Scantlebury Brown, 'Nutrition of the Pre-School Child', \textit{MJA}, 30 Jul 1938, p.153
\textsuperscript{55}Webster, 'Healthy or Hungry Thirties?', p.121; Mayhew, 'The 1930s Nutrition Controversy', p.457
\textsuperscript{56}Clements and MacPherson, \textit{The Health Record}, pp.14-26
and measles.\(^{57}\)

The Centres were preoccupied with teeth and tonsils. Among preschoolers, enlarged tonsils were proclaimed a menace because children affected were thought more susceptible to infectious diseases, especially scarlet fever, diphtheria and measles (the reader will recall that tonsils and teeth were listed under Truby King's 'gateways' to health or disease), with the result that many had their tonsils removed. The proportions reported to have inflamed tonsils in 1940-5 ranged dramatically from 23 per cent in Hobart to 69 per cent in Adelaide. Melbourne and Brisbane were about even, with 53 and 54 per cent, although 85 per cent and 44 per cent respectively of children positively diagnosed at these Centres went on to have a tonsillectomy.\(^{58}\) The discrepancies issued from different medical opinions as to whether enlarged tonsils were septic, and if so, whether they ought to be extracted. As medical officer to the Melbourne Gowrie, Kincaid favoured surgery. But as far as may be determined from inadequate records, the outcomes for their health appeared no different whether or not children kept their tonsils.

At least as many children had bad teeth: in Clements' estimate, about half throughout Australia by the time they started school. It is now difficult to imagine large numbers of children with toothache. The Lady Gowrie children, however, were more fortunate than their parents' dentured generation in that they lost only their baby teeth. Aside from these physical defects the record showed some improvements. Only five per cent of the children had a nutritional status that Clements described as 'strongly unsatisfactory', while gastroenteritis was no longer an 'important and serious' disease.\(^{59}\)

\(^{57}\)Heinig, \textit{1st Annual Report}, 1941
\(^{58}\)Clements and MacPherson, \textit{The Health Record}, p.15
\(^{59}\)Clements and MacPherson, \textit{The Health Record}, pp.23, 26; also LGCC Adelaide, \textit{5th Annual Report}, 1945, p.10
Individual case histories, though they convey the bias of their authors as much as do the official reports produced by the Centres, tell a different story about the children's health from the published evidence. From the extant records at the Melbourne and Adelaide Centres I took a sample of one case history in ten of the first children who attended in the period 1940-5, which produced a selection of 20 case histories from Melbourne and 30 from Adelaide. Another 20 were taken that belonged to children in Sydney, from a total of 122 case medical histories discovered in Canberra. Neither the Melbourne nor Adelaide histories were catalogued, but bundled, at random, in boxes and trunks at their respective Centres. Because of the research demands for a weight-for-age line and a health record that required medical histories to be sent to Clements at the Institute of Anatomy in Canberra, the social histories were found to be separate from medical histories, and the latter incomplete. Only some medical histories have survived from the Sydney Centre; the social histories were destroyed in 1975. Of the case studies examined, the Adelaide Centre's records were the best in bulk and content, and the most carefully preserved. They offer a valuable archive for the social historian. The most accessible records are in Perth, where approximately 200 case histories are stored, boxed and catalogued, in the Battye Library, though these too are patchy.

Patricia Crawford has drawn on the Perth case histories to recreate the experiences of the working-class children who attended the Centre in Victoria Park, and to assess the impact of this intervention on the children and their families. She concludes that 'the staff exceeded their original brief

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60In 1986 I found the Sydney medical histories in the Psychology Department at the Australian National University. I understand that they have since been returned to the AECA, Canberra. I owe a debt to Ms E.T. Mellor, Director of the Adelaide Lady Gowrie Centre, for the care that she has given to preserving the Adelaide records. Edna Hill observed in 1949 that the best records were in Perth, where the population was less transitory and records better kept, in The Lady Gowrie Child Centres: A First Analysis of Case History Records of Children Attending the Lady Gowrie Child Centres (1939-1946), Canberra, 1949, pp.3-4
of demonstrating methods of child care and studying problems of behaviour, and were inculcating working-class children with middle-class values.\footnote{Patricia Crawford, 'Early Childhood in Perth, 1940-1945: From the Records of the Lady Gowrie Child Centre', in Hetherington (ed), \textit{Childhood and Society in Western Australia}, p.204} The pursuit of saving, then, endured. Here I am concerned less with the interventions of the professionals, than with the children's state of health and its significance for assessments of effectiveness.

A most striking feature about the Lady Gowrie children is that they were products of the fertility transition. The majority came from one to three child families (81 per cent in the first analysis of case studies, 84 per cent in my sample of 50 social and 20 medical histories).\footnote{Hill, \textit{First Analysis}, Table 11, p.19. These findings tally with the Adelaide Hills Survey of the same period, which found that 84 per cent of children inspected were from families of one to three children. Jungfer, \textit{Child Health in a Rural Community}, pp.13, 16} Some mothers, it must be said, had not completed their childbearing. Nonetheless they belonged to the cohorts who limited their families, on average, to fewer than three. If the speculations in Chapters 1 and 2 are correct, then this had enormous implications for the children's survival chances. Had parents not limited their families then living conditions in the wartime housing shortage could well have been worse.

The case studies show that the health of children, thought to be pitiful, was in fact quite good. Most children by contemporary standards were adequately fed. Probably two year old L.W.'s diet was typical. She ate breakfast of porridge, scrambled egg on toast and weak tea. Oslo lunch of wholemeal bread, peanut butter and Vegemite, cheese and fruit followed at the Melbourne Centre, while for her evening meal she had stew, cabbage and potato, bread, butter, jam and the ubiquitous weak tea. Since milk was rationed, in 1942 she had one pint of milk a day.\footnote{LW, 327, Melbourne} At the time Australians procured for consumption 6.8 pounds a head of tea, 22.5 gallons of milk (less
than half a pint a day each) and ate 98 pounds of potatoes, 203 pounds of flour and 212 pounds of meat every year. Before sugar was rationed to a seemingly astonishing one pound per adult a week, Australians consumed double that amount, or an average by 1940 of 109 pounds a year each. New Zealanders ate even more sugar than Australians and (not surprisingly for primary producers) more butter and meat, while the English ate more potatoes - and drank more tea.\textsuperscript{64} It was a diet heavy in carbohydrate, but the Lady Gowrie children no longer ate bread and dripping; the steamed pudding oozing jam or treacle bore witness to improved living standards.\textsuperscript{65} The Centres aimed to supply 75 per cent of the children's daily requirements of protein, vitamins and minerals.\textsuperscript{66}

Undoubtedly families had suffered in the Depression. Some breadwinners - most often unskilled - continued to be periodically unemployed until the war brought a regular income. One father, a painter, had been out of work for five years since his marriage in 1926; another was unemployed 'off and on' for six years until, unfit for overseas service, he found a wartime job as a council employee; another, a builder, was out of work for ten years on relief and an invalid pension, until in 1941 he became a munitions worker; and another was a labourer who filled flour bags in between three years of unemployment and signing on with the airforce. These families found the relative bounty of the war years a relief. There is clear evidence that the Depression damaged the health of mothers among the long-term unemployed, with consequences for the infant mortality statistics: the painter's wife had a stillborn child in 1928, and a miscarriage in 1933 before her twins were born, prematurely, in 1936. Moreover the

\textsuperscript{64}Commonwealth Year Book, 1944-5, p.1101; M. McKernan, \textit{All In! Australia During the Second World War}, Melbourne, 1983, p.158

\textsuperscript{65}On bread and dripping see Judy Mackinolty (ed), \textit{The Wasted Years? Australia's Great Depression}, Sydney, 1981, p.105

\textsuperscript{66}F.W. Clements, 'The Medical Programme to be Carried Out at the Lady Gowrie Child Centres', \textit{Pre-School Child Bulletin}, vol 2, no 1, Apr 1940, p.8
frequency of miscarriages in the worst trough of the Depression might mean that a number were induced.67

Bad health, usually from respiratory infections by the war, was almost exclusively confined to the families of these unskilled workers. The painter's twins succumbed to pneumonia and German measles in 1941, followed by Bright's disease in one and scarlet fever in the other, with the result that in 1942 they had their tonsils and adenoids removed.68 The flour bag labourer's son, aged two in 1944 when he entered the Adelaide Centre, had been 'in and out of hospital' for most of his short life, with otitis media and broncho-pneumonia; he had a mastoidectomy, adenectomy, infected lesions of the buttocks, impetigo, diarrhoea sometimes, and temper tantrums which found him, in 1945, in a psychiatric clinic. By the age of three, however, his health was good.69 These families lived on low incomes in bad housing, and their mothers had not been to secondary school. Raised in working-class suburbs ill-served by the public education system, mothers, while primary-school educated, were denied this opportunity to grow up to live a more comfortable life.70

Case studies also reveal an association between poor health and housing shortage, that intensified in the war when domestic building stopped.71 Probably the worst cases were in Sydney where a number of families lived in three 'dingy' rooms, using the kitchen as a living room, and the children succumbed to pneumonia and bronchitis.72 P.S., who lived with her parents and sister in a single-fronted brick cottage in inner Melbourne, had a permanently 'blue pinched' look. She was reported to be

68IW, 10A, Adelaide
69GK, 300A, Adelaide
70On this point, raised in chap 7, see McCalman, Struggletown, p.72
71McKernan, All In!, p.261
72DG, Sydney; AT, 249A, Adelaide is another example
poorly nourished because she disliked meat, though she enjoyed her vegetables. She and her sister shared a bed in their parents' bedroom, which suggests that crowding and frequent infections may have influenced her small stature. Though she wore pathetically thin clothes, the social worker nonetheless described her as normal in her social and mental development, secure, and affectionate.\textsuperscript{73} Likewise, M.M. was purportedly poorly nourished because she was below average weight, but her social and mental development was normal. She too lived in cramped conditions with her mother, grandmother and sister while her father, a carpenter, whom she had hardly seen, was away at the war.\textsuperscript{74}

Among 462 children who attended the Centres continuously for a minimum of two consecutive years, the first official analysis of the case histories found no correlation between housing and health. But the sample's variability in housing conditions was restricted because the choice of continuous records excluded the itinerant poorest. Even then the analysis yielded a relationship between poor health and 'repeated respiratory infection of the child by other members of the family'. Again the potential for insight into crowding, associated with low incomes, and disease was lost.\textsuperscript{75}

From the case studies sampled it is clear that the children most deprived came from large families living in condemned or squalid housing with poorly educated parents and the breadwinner unemployed. Two small Adelaide boys belonged to families of seven and eight children (the mother of seven had had three miscarriages in her 18 years of childbearing); one

\textsuperscript{73}PS, 249, Melbourne
\textsuperscript{74}MM, Melbourne
\textsuperscript{75}Hill, The Lady Gowrie Centres. A First Analysis of Case History Records, p.105. The famous contemporary survey of a thousand families in Newcastle upon Tyne demonstrated that crowding lowered the age of infection. The severity of respiratory disease was correlated with the number of people and number of rooms in a household. J. Spence, W.S. Walton, F.J.W. Miller and S.D.M. Court, A Thousand Families in Newcastle upon Tyne: An Approach to the Study of Health and Illness in Children, London, 1954, p.61
mother had never been to school, the other had been only to primary school, and one father was illiterate. One child had a history of tonsillitis, ear infections and measles, though the health of the other is lost from the record. Neither house had running water or electric light, and both were overcrowded. In one house, parents and the latest baby shared a bedroom in the customary pattern, sons a second, a daughter and her husband a third, and a younger daughter slept in the sitting room; and in the other, the mother and daughters shared a room and father and four boys, including the Lady Gowrie toddler, another room, two to a bed. The division of sleeping quarters in each case depended on and affected the parents’ marriage relationship. There was little stability for the children: G.H. had lived in four houses in his three years. Thebarton Infant School complained of J.R’s home conditions that ‘the general management of finance, discipline and domestic matters, show very little method.’76 But the material - and educational - prerequisites of ‘method’ in each case were absent.

War brought its own gains and losses for the national health. Emotionally, the war claimed its toll of grief, that fell hard on women, and through sadness affected their health and that of their children, sometimes physically but more often in terms of their behaviour towards others. Blackout curtains were an inconvenience and the news of hostilities was frightening.77 Immediate loss of loved ones was worst. Mrs M. was eight months pregnant when she heard that her husband had been killed in New Guinea; the baby was stillborn. Her toddler responded with shyness, to the point that the doctor found her mentally retarded and the Lady Gowrie Centre administered a Binet test, symbolic of the new fashion for psychological measurement. The loss of the father, the breadwinner,

76GH, 56A, JR, 93A, Adelaide
77Beresford, questionnaire, Aug 1988
wrecked the household finances: mother and child moved in with grandparents and siblings, eight people in all, living in a semi-detached cottage. The crowding was worse when fathers-at-war returned. Often children did not remember their fathers. But mothers and babies, as I have explained, and toddlers too, did well from extra food rations.

Reformers since the early 1900s had striven to alter mothers' practices. Accordingly, when children seemed improperly fed the social worker tended first to blame the mother. Two year old G.B.'s nutritional state was allegedly poor. A small and thin and sallow toddler, Sydney's social worker thought him 'drab and colourless'; he 'never looks clean'. She blamed his 'hopeless' mother who 'gave no impression that she could have enough strength of mind to make G. keep to a routine.' That the child still wore nappies at night and sucked his thumb confirmed that Mrs B. had 'no idea' how to train him. G.B. had been bottle fed modified cows' milk from two weeks old, which could have affected his immunity. He ate between meals snacks of fruit, bread and jam, but drank the optimum pre-school milk ration, of one and a half pints daily. There appeared to be other reasons for his gastroenteritis and bronchitis aside from irregular feeding, unfortunately lost with the destroyed social histories. We may speculate, as in the Wonthaggi case studies of infants with diarrhoea, that these could have been subsumed under the word 'deprivation'; and that his illnesses might have had something to do with the quality of milk that the child drank in such quantity.

As a general rule mothers were deemed 'bad' not if their children's health was poor, but if they had a habit of suiting themselves. Commonly

78DM, 294A, Adelaide
79BW, 269, Melbourne. For corroborative evidence of the disruptive impact of war, see Crawford, 'Early Childhood in Perth', p190
80Crawford has also established this point in 'Early Childhood in Perth', pp.196, 198
81GB, Sydney
this took the form of refusing to work by roster in the Centre's kitchen, indignant that this was expected when they already paid a fee (often 3/6 a week, though some paid 2s - the payment was means tested). Crawford also notes how the staff at the Perth Centre expected parental involvement, which in practice meant help in the kitchen or laundry, which many mothers disliked.82 Mothers were criticised when they removed their children after a couple of days because they believed them unhappy, objected to their incessant colds and disagreed with the Centres' afternoon sleep, which left toddlers wakeful at night; and resented the teacher's incessant intrusive questions.83 Often mothers faced real practical difficulties: one withdrew her child from the roll in 1941, because she had had another baby and found transport difficult, another when she was separated and, struggling to pay off debts by working part-time, took her daughter to live with her grandmother.84 Another child of separated parents was removed after her mother, frightened of the father, obtained some guidance from the Centre in how to manage husband and children but could not meet the requirement of regular attendance.85 G.K.'s social history was long not because of his repeated infections, but because his mother exploited the Centre for her own improper purposes; she pocketed the takings from a sweep that she ran among Centre mothers on Melbourne Cup Day, to pay the family's hospital bills.86 Mrs H. agreed that the Centre had 'done much' for her child, a Truby King failure who was a difficult eater and badly behaved to the point that she was afraid to entertain guests. But she withdrew him because her husband, a plumber, needed his wife to answer

82Crawford, 'Early Childhood in Perth', p.199
83AB, BR, 80A, Adelaide; ED, Melbourne; DG, Sydney
84MS, 19A, Adelaide; LS, 287, Melbourne
85GH, 303, Melbourne
86GK, 300A, Adelaide
the telephone for his business.\textsuperscript{87} When the staff and mothers were in conflict the children's records grew voluminous; and when mothers found their authority in the domestic sphere inadequate, they invoked that of men, and found their decisions, in the name of husbands, unchallengeable.\textsuperscript{88}

Most of all, the Centre workers disapproved of working mothers, again whether or not their children were healthy.\textsuperscript{89} Mrs W. longed to leave the villa that the family shared with her daughter's grandparents in Adelaide. She wanted a new house in the suburbs, and sought part-time work to pay the mortgage. Her child's grandmother was willing to supplement the child care provided by the Centre in Thebarton, but the Centre persuaded her that she could 'not take a regular job, as she must be free to call for the child'.\textsuperscript{90} The toddler's health was not the issue as C.W. was well above her weight for age; and the mother's aspirations to social mobility met with approval. Nor were the staff fearful that Mrs W. would remove the child and ruin another continuous medical record, needed by Clements for his growth charts, because mother and grandmother valued the child care that the Centre provided. The grandmother intended to call for the child at the Centre, so escort arrangements were not a worry. The debate was about a demand for seemly, dutiful behaviour from a mother whose natural realm was home and family.

It is ironic, then, that the Melbourne Lady Gowrie Centre, pressed by the exigencies of wartime conflict, became a Wartime Centre in April 1943, its altered brief being to encourage women into munitions and essential industries. Doctors, infant welfare nurses, directresses and social workers, perturbed at this violation of ideal motherhood, distributed detailed

\textsuperscript{87}CH, 125A, Adelaide
\textsuperscript{88}Crawford, 'Early Childhood in Perth', p.204
\textsuperscript{89}See also Crawford, ibid., p.201
\textsuperscript{90}CW, 36A, Adelaide
questionnaires to survey the impact of paid work for women on mothers and on their children's development and found that some mothers were much happier in paid work. Mrs P., whose husband died of war wounds, preferred to peel onions from 9 a.m. to 4 p.m. for £2/4/7 weekly rather than stay home with her grief; Mrs R. found her work as a waitress, at £2, a release from disputes with her mother about whether she should leave her husband, who had beaten her, but was safely absent in the RAAF; while others preferred housework to the tedium and noise of working-class employment. The Centre staff recorded an improvement in the health of children of working mothers because of the extra money coming into the house, in low income families where mothers went out to work, and no ill effects in households which had enough money for basic needs before the mother began waged work. Mothers in paid employment lifted the family income above the basic wage, with a consequent bonus for infant nurturing practices. Moreover these mothers were organised: rather than neglect their chores, they did their washing, ironing and mending in the evenings, and on Saturday morning, at no cost to their children, but at the cost, rather, of their own leisure, if they had any. In the unanimous opinion of the directresses, nurses and social workers, the evidence of the three Wartime Centres in inner Melbourne, including the Lady Gowrie, showed that a mother who worked from 9 a.m. to 4 p.m. daily could 'adequately carry on the responsibilities of a home maker', as well as derive personal benefit, companionship and interest from paid work, to the advantage of her children.

The evidence refuted the prevalent belief, expressed by Cumpston, that

91WP, 227, BR, 228, GP, 244, Melbourne  
92RP, 242, Melbourne  
93BW, 226, Melbourne  
94A. Constance Duncan and Christine Heinig, 'War Time Children's Centres', 8 Jul 1943, CRS A1928, Item 155/19
the Melbourne Gowrie's roles as a wartime and demonstration centre were incompatible. With this information suppressed, the Centres' espousal of traditional sex roles hardened. This trend was reinforced in the childrearing literature as popular interpretations spread of the WHO report on maternal care and mental health by the British Freudian psychiatrist, John Bowlby. Bowlby's insistence that the quality of parental care in the earliest years was of vital importance to mental health, that what was essential was a 'warm, intimate, and continuous relationship' between the mother or a substitute in which 'both find satisfaction and enjoyment', was interpreted to mean that the mother should never leave the child. The Lady Gowrie Child Centres responded by shortening their hours to mornings (9 to 12, or 9 to 2.30 at most) in the 1950s.

The Centres' drop-out rates offer insights into the behaviour of working-class mothers and the constraints that they faced. Outside Melbourne, the Centres recorded a drop-out rate of 50 per cent - and the Melbourne Gowrie, which enabled mothers to work, 33 per cent. This suggests what may now seem obvious, that when mothers worked they needed the sort of child care facility that the Centres provided. When they did not, it was difficult for them to meet the Centres' requirement that their pre-schoolers attend regularly. Half the children left for reasons which doctors and social workers termed 'abnormal': because their parents left the district, because of 'lack of co-operation and poor attendance', repeated illnesses and difficulties associated with bringing the child. The sole

95Bowlby's report, Maternal Care and Mental Health, WHO, 1950, became the book, Child Care and the Growth of Love, 1st pub 1953. Dally asserts that Bowlby exerted more influence on professionals, governments and mothers than any manual writer; her thesis is that 'motherliness' should be spread, and her book an exercise in how Bowlby was misrepresented, Inventing Motherhood, pp.84-111

96Bowlby, Child Care and the Growth of Love, p.11, also cited in An Analysis of the Work of the Lady Gowrie Child Centres from 1940-1952: Their Present Functions and Possible Future Development, in Ethleen Bridges King Papers, SLV MS 10682, Box 18/2; Dally, Inventing Motherhood, pp.88-9
'normal' excuse for absenteeism was transfer to school. Evidently normality was decided by the anthropometric demand for continuous records; Adelaide parents were threatened with having to pay the cost of immunisation if their children did not attend, but to no avail. The poorest families, ever on the move, in rental housing provided the highest proportion of non-attenders, ranging from 40 to 72 per cent. Belonging to the casual poor was 'abnormal', as was the struggle to get the children to the Centre. This problem was worst in Adelaide. The Centres were supposed to be within a half-mile radius of children's homes, the distance professionals calculated that a toddler could walk. The radius was one mile in Adelaide. Mothers, then, were obliged to walk two miles a day (up to four in Adelaide), pushing the pushchair, or the pram with the baby, toddler in hand, and if they could not manage this they were theoretically not capable of raising a 'normal' child.

'Good' mothers, generally better educated and by definition more confident than 'bad' mothers, obeyed the Centres' regimen because they were able to do so, unimpeded by poor schooling, housing and unemployment; they had more years at school, more money and husbands in skilled work. Often described by the staff as 'intelligent and attractive', they stayed at home to keep the house 'clean and orderly', or 'spick and span and fresh'. They shared the Centres' values, already familiar from the baby health centre and the majority, like most Australians, were Protestant. Adelaide's favoured mother, the secretary of the Mothers' Club, was married to a teacher at Thebarton State School. Herself high school educated, her husband was even more unusual in having a degree. The family lived in a three bedrooomed villa, with a gas stove, a wireless, a piano, and books about. Their son was healthy, potty trained, fed himself, and

97RB, PR, Sydney, KB, 25A, Adelaide
went to church. Another preferred mother, married to a Church of Christ youth director who spent 'every free minute' with his children, had been educated at Melbourne's Bible College. Also active in the Mothers' Club, she selected new books for the library. Her pre-schooler was healthy, potty trained and independent. Good mothers cooperated with the Centre and were actively involved; they were prepared to do extra kitchen duties and participated in discussion groups. Better mothers, as in the baby health centre study in Chapter 7, were most like the staff themselves. Before her marriage to a bank clerk J.P.'s mother had been a nurse. Her two children were 'beautifully dressed'. The family drank six pints of milk a day which suggests that the children had the optimum standard of two pints each. This was reported to be a 'good type of home - parents intelligent and co-operative, and very pleased because the children are able to attend the Centre.' Sensitive to their children's emotional needs, the Centres' ideal mothers loved, understood, played with and were ambitious for their children. They did as the American authority on child development between the wars, Arnold Gesell, advised and were perceptive to their toddlers' behaviour.

THE CHANGING RULES

The rules presupposed that children had become healthier. For there to be a transition from Dr Truby King to Dr Spock, from an emphasis on 'character' to 'personality', preoccupations with what children ate had to diminish, and the children's health be seen to depend less on the amount and type of food eaten. Being made to eat, as under Truby King's regimen,

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98IM, 49A, Adelaide
99HS, 355A, Adelaide
100BS, 210A, DL, 220A, Adelaide. See also Crawford, 'Early Childhood in Perth', p.199
101JP, 266A, Adelaide
102See also Arnold Gesell and Frances Ilg, who advised that instead of 'striving for executive efficiency', mothers should be perceptive to their children's behaviour, in Infant and Child in the Culture of Today: The Guidance of Development in Home and Nursery School, 21st ed, New York, 1943, p.57
suggests that the contents consumed are important, while letting the child decide, as Spock counselled, suggests that the child is already well fed and consequently robust enough for 'what' and 'how much' not to matter. Truby King insisted that children be made to eat food they disliked in the interest of forming their character: 'Our dentists tell us', he declared, that 'when they insist on the eating of crusts and other hard food, the mother often says "Our children simply won't!" Such children merely exemplify the ineptitude of their parents - parents too sentimental ... or indifferent to train their children properly.... Power to obey the "Ten Commandments," he repeated, 'is not to be expected of "SPOILED" babies when they reach adult life.'

Psychiatrists began to accuse Truby King's followers after his death in 1938 of inducing over-anxious mothering. One Australian child psychologist complained that his system was 'very attractive and plausible' until the mother attempted to apply it. In the hands of the faithful it had become 'rigid and standardized', breeding insecurity in mother and baby, the font of neurosis. The insecure mother set 'such store on all the "musts" and "must nots"' and denied her instinct to cuddle and comfort the crying baby, with the result that the child suffered 'separation anxiety', which could be 'rekindled at any stage in life and ... ultimately form the pattern for neurotic symptoms'. The 'battle of the pot' was equally dangerous; nor did feeding by the clock satisfy the baby's demand for oral pleasure, which was far more important than that the child escape indigestion from over-eating; and dummies did not cause adenoids. Rather than inculcating character, these rules created a 'nightmare of uncertainty' for the mother and a monstrous, rebellious child.

In 1945 Spock spoke for a world increasingly disillusioned with

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103 Truby King, *Story of the Teeth*, pp.42-3
clockwork rules. He responded: 'Can you spoil a baby? Not by feeding him when he's hungry, comforting him when he's miserable, being sociable with him in an easy going way.' The tone had changed, the psychology of child nurturing had become child-centred and children nice. The new refrain as health chances improved was to guide, not punish. Spock drew his inspiration from the psychoanalysts of the 1930s who in turn drew theirs from Freud; and from Gesell's developmental psychology.

In 1945 Spock preferred neither demand feeding nor four-hourly feeding. Instead he advised the mother to work toward a routine decided by the baby's rhythm and the mother's convenience. Spock himself, a Freudian psychoanalyst, learnt from his small patients' behaviour. Christine Heinig advocated the same practice in 1938. More importantly, Spock trusted the 'normal' baby to decide the amount and type of food it needed. He alleged that it was impossible to over feed a baby; if given too much, it refused to eat. The same applied to the toddler, who if served a balanced diet would choose wholesome food. Spock cited the famous experiment in the early 1930s by the American Dr Clara Davis who had allowed pre-school children in hospital to choose their own food. Heinig had been present at this experiment. She and her friend Scantlebury Brown were early opponents of enforced feeding, which they believed produced inhibitions about food. By 1940 these 'inhibitions' were thought more common than malnutrition; once children were perceived to be well fed, feeding was transformed into a psychological difficulty, defined as a problem of mismanagement, of a failure to inculcate self-control - and a lack of understanding. Even Popeye the sailorman, as created by the conservative

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105 Benjamin Spock, The Common Sense Book of Baby and Child Care, New York, 1946 (1st pub 1945)
106 One was Mary Catherine Bateson, daughter of Margaret Mead, born in 1939, who put herself on a regular schedule. Bateson, With a Daughter's Eye: A Memoir of Margaret Mead and Gregory Bateson, New York, 1984; also Dally, Inventing Motherhood, p.84
propagandist Walt Disney, to be 'nice and strong, pure and true' until all out of spinach, was lambasted by one doctor as a 'world-wide monument to the obsessionalism of the food fanatics' because he had been invented to persuade children to eat their spinach (in Australia, silver beet). The Lady Gowrie children, predictably, loathed silver beet.

A major problem with toddlers proved to be refusing food that was thought good for them, and a preference for sweets, icecream and biscuits. In her Perth study, Crawford found that: 'Child after child was recorded in case study notes as having food fads for disliking a range of things, including most usually pumpkin, custard, and milk puddings. Other unpopular foods included cauliflower, cabbage, liver, squasy foods, bananas, blancmange and bread crusts.' Children in Sydney, Melbourne and Adelaide shared these tastes, or hates. The problem-eater was discussed at a conference in 1941, which found that only 78 of 786 children examined were 'normal' eaters, that is, ate food they disliked. Smaller families were deemed the culprit. 'It is now fashionable to have small families and too frequently all the parents' eggs are in one basket', the professionals complained, although the 'average mother today knows more about the essentials of a good diet than did the best informed doctors twenty years ago'. Producing a fussy eater was not an isolated problem: this itself could incite the new emotional difficulty, the temper tantrum.

In theory and in practice the Lady Gowrie Child Centres straddled the transition from strict routines to appetite feeding. In theory, they encouraged, rather than forced, children to eat the dreaded spinach. In practice, following Truby King and Popeye, they prided themselves on

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107 Swanton, 'Psychology, Baby Health and Child Welfare', p.239
108 Crawford, 'Early Childhood in Perth', p.190
109 Clements and MacPherson, The Health Record, p.33. GB, Sydney was one icecream lover; on the general case of food likes and dislikes, see RSWMB, Annual Report, 1935-6, p.12, 1936-7, p.4
110 Clements and MacPherson, The Health Record, p.8
making children eat 'normally'. This translated into eating everything, 'even crusts', as the following contretemps over tomato juice shows. One child, told that he 'must have a little last taste before he went home to Mummy' lay on the floor and screamed. He refused to drink any until his mother arrived, and when she did, escaped and refused to return: 'No', he protested, 'you'll only take me inside, smack me or do something.'

Earlier than infant welfare centres, the Lady Gowrie Child Centres were repositories of diluted Freudianism and theories of social and motor development; indeed this was in keeping with their role, as demonstration pre-school centres. But the different chronology of prescription and practice was again clear. The tone of the advice literature had softened with the emphasis on all-round development, but the practice of the Centres remained authoritarian, especially about what constituted proper feeding. Practice at the Centres lagged behind the latest theory about raising children, to which the Depression added security, and war added democracy, as important for the philosophy of child development.

RESULTS

In any event, the Centres produced mixed results for children's health. The children were protected against diphtheria because immunisation was a prerequisite for enrolment, but they were not protected by the morning medical inspections from other respiratory diseases. Colds were more common among attenders than among three and four year olds outside. Clements placed the blame with the parents, whose cooperation was necessary for the routine medical inspections by the doctor to be effective, though he acknowledged at the same time that colds in toddlers who attended were an expected disadvantage of companionship. On the other

111Case study 267, Perth, courtesy of Patricia Crawford. See also Crawford, 'Early Childhood in Perth', pp.190-1
112Clements and MacPherson, The Health Record, p.39
hand, the Centres recognised that respiratory problems were worst among the most badly housed and sought welfare assistance for these families. Staff lobbied the Housing Trust, or Commission, in each state for better accommodation for the poor, and in the meantime provided a palliative in the form of stretcher beds for small children who otherwise had to share a bed with a sibling. Mrs S., with debts of ten shillings a week and an invalided husband, was very grateful for 'another one of them beds'; she received two from the Melbourne Centre, at ten shillings each, which she paid off in instalments. The effect of this form of welfare provision, while well intended, is unclear.

The Centres best served children who were already well served, whose families were on above average incomes, and better housed. These children had fathers in white collar work. The case studies suggest that the lucky ones belonged to families where fathers earned £6 or more a week, enough to escape the housing shortage. Kincaid's observations in the 1930s that children from North Carlton, especially from Polish or Jewish families, were better nurtured, is borne out by the case studies; the handful of Jewish children who attended the Centres were breast fed for longer, were clean and neat, and their fathers indulged them with the latest developmental devices, wooden toys, the tricycle, and the wheelbarrow.

In these families, and in better-off families generally, husbands were more likely to spend time with their children. J.P.'s father, a bank clerk, spent his spare hours with his two, assisting their development through play. His children had a sandpit, as well as the requisite wooden toys, cart and wheelbarrow included. The luckiest toddler of all had a rocking

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113DS, 305, Melbourne
114IG, 260, ED, Melbourne. In 1943-4 Amirah Inglis's little brother had a sandpit, 'the latest educational amenity for kindergarten children', and the two Jewish children in the Melbourne sample were similarly advantaged. Amirah Inglis, Amirah. An un-Australian Childhood, Melbourne, 1983, p.149
115JP, 266A, Adelaide
horse. J.D's 'father's interest in the Centre [was] rather unique'; a Carlton newsagent, he supplied the Melbourne centre with paper.\textsuperscript{116} During the 1930s and 1940s fathers had become involved in childrearing, through play, and the better off were better able to meet this ideal of parenthood. 'Parentcraft' included the father's contribution to child development, although it was relevant principally to middle-class people, just as 'mothercraft' had been in the 1920s.

'Mothercraft' changed to 'parentcraft' just as men departed for combat, which again illustrates the different chronology of rules and practice. Mostly pre-schoolers had to wait for men to return from the hostilities to have fathers who played with them, while for many children the physical and emotional care contained in 'parentcraft' continued to be provided by their mothers and their grandparents.

Irrespective of their health record, the Lady Gowrie Child Centres worked wonders by encouraging toddlers' cognitive and social development.\textsuperscript{117} They built the confidence of both children and mothers, particularly where mothers had some secondary education. The dynamism in the Centres came to a large degree from the children themselves. The children taught the professionals, in their social development as in feeding habits, including the earlier introduction of solids: American paediatricians by 1945 did not recommend solids before five months, and Dr Harper decided to ask infant welfare sisters to test the theory on babies: 'if you could select one or two of the more intelligent mothers and encourage them to begin to teach babies to feed themselves early, you would learn by experience the best method to do this, whether Dr Smith's or some modification of it.'\textsuperscript{118} The same principle applied in the Centres.

\textsuperscript{116}JD, 90, Melbourne
\textsuperscript{117}AL, 315A, Adelaide
\textsuperscript{118}7/997, AONSW
It is surprising that there were not more problems, considering the possibilities for tension between generations that resulted in L.W.'s mother becoming 'very fed up', and the 'disreputable' state of some - too much - housing.\textsuperscript{119} The good sense of parents and grandparents kept tension within bounds. The same housing stock which had harboured a high rate of infant deaths had improved since the turn of the century; houses were less damp and better plumbed; and living standards, McLean and Pincus estimate, had improved 100 per cent.\textsuperscript{120} But an important, and often overlooked, factor in this overall improvement, that predated wartime changes in the material conditions of living, was people's private evaluation of their hopes and prospects, of the cost of children, financially and for women's health, that prompted them in the face of government impediments to have fewer babies.\textsuperscript{121} Between 1901 and 1947 the average number of rooms per house remained constant at a little below five, but the average number of rooms per person rose as family size declined.\textsuperscript{122} This provided more space per person and reduced the likelihood of infection in young children from older carriers, children or adults, in the house. Children were physically and mentally better and their mothers more inclined to make decisions for themselves, if house-bound. The raised standards expected by the model Lady Gowrie Centres and by the infant welfare movement generally from the 1930s and 1940s were made possible by better health.

\begin{flushleft}
\textsuperscript{119}LW, 327, Melbourne
\textsuperscript{121}There are many examples in V.H. Wallace Papers, Patient History Cards, 17/1, Melbourne University Archives
\textsuperscript{122}McLean and Pincus, 'Living Standards in Australia 1890-1940: Evidence and Conjectures', pp.13-14
\end{flushleft}
CONCLUSION

This thesis has examined the relationships between the decline in infant mortality and the rise of the infant welfare movement, and it has also considered mothers' behaviour. It proposes that the movement in Australia did not contribute as powerfully to the fall in infant mortality as its protagonists professed and believed. This conclusion rests on the demonstration of inappropriate relationships in time and space between the putative cause and effect, as recorded in the historiography of infant welfare, and on the illustrative recollections of mothers who had their babies between the 1910s and 1940s.

The major declines in infant mortality preceded the rise of mothercraft institutions. Infant mortality began to fall in Australia from the 1880s, with a major decline from about 1900, whereas the infant welfare movement did not take off until the losses of the Great War stirred administrators to try to repair the wastage. Those organisations which did survive from earlier in the century, and which flourished after the war, were mothercraft institutions. Lewis and Dwork cite this flourishing in support of their thesis that mothercraft was the successful strategy in the battle to reduce the infant death rate. However their conclusion from this and other evidence that infant welfare services contributed much to the largest part of the decline is unsupported.\(^1\) Intentions are not a valid measure of the effectiveness of public health policies and interventions; nor is the growth of an institution a measure of its potency. My findings are more in accord with the judgment of Jane Lewis, that it is unclear how infant welfare contributed to the decline in infant mortality.\(^2\) However I would argue that the movement did, belatedly, help induce a more intensive attention to babies.

The chronological sequence of events in Australia demonstrates that

\(^1\)Lewis, "'Populate or Perish'"; Dwork, *War is Good for Babies*

\(^2\)Lewis, *Politics of Motherhood*
the movement was a beneficiary, rather than an instigator, of the downward trend in the infant death rate. The proportion of mothers and babies who attended centres offers an indirect measure of the movement's contribution, and in Victoria, the state where infant welfare services were the most comprehensive, only in the late 1930s did two-thirds of new babies attend the centres. To this missing third belonged the babies of the casual poor, among whom infant mortality was highest and most diarrhoeal disease occurred. Similarly, the retreat of infant diarrhoea predated attendance by the majority of babies.

While the decline in infant mortality from early in the twentieth century was even across Australia, the movement spread unevenly. Indeed, there were no centres in Western Australia until the early 1920s, and yet Western Australia exhibited the same downward trend. The fall affected rural and urban districts in all states when the centres were mainly urban, and in the period 1930-45, when metropolitan infant mortality rates fell below the averages for non-metropolitan areas, three-quarters of the new centres opened in the country. There is room for further inquiry into inter-state differences in the period of coincidence between the fall in infant mortality and the rise of mothercraft institutions. But this preliminary evidence indicates that the spatial, as well as temporal, relationships between the rise of the infant welfare movement and the fall in the infant death rate do not support the older dominant interpretation that mothercraft campaigns were directly causal to the major decline.

The prescriptions of infant care themselves responded to - more than they affected - the altered mortality regime. The routine of feeding by the clock, three- or four-hourly, which was intended to prevent diarrhoea, attained its apogee in the literature after the diarrhoeal diseases began to subside; and once prematurity (low birth weight) dominated mortality charts from the 1920s, nutritional concerns turned from over feeding to under
feeding. The Depression encouraged this shift because surveys of children's heights and weights revealed undernourishment in pre-schoolers; both low birth weight babies and young children needed protein for growth and development. From the Depression, the optimum, as opposed to average, dietary standard became the norm, which alone suggests that children were bigger and healthier than previous generations. Correspondingly, children had to be, and be perceived to be, healthier before the messages imparted to mothers would grow more flexible, allowing young children to eat as much as they wanted, and before attention would turn from food to all-round physical, mental, social and emotional development.

My argument is more closely bound to the facts of demographic change than those of two recent studies: Armstrong's thesis that the infant welfare survey created opportunities for new disciplines to pontificate on the normal as well as the abnormal child; and Reiger's thesis that the rules in Australia grew increasingly complicated under the aegis of the rationality-promoting professionals, while the shift of emphasis to child psychology in the manuals and magazines of the late 1930s demanded more of mothers. What demographers have begun to describe as the health transition, which included changes in reproductive patterns and mortality and their perceived causes, allowed the change in the literature from Truby King to Spock.

I have argued that a 'missionary model' best encapsulates what the reformers were doing and the strength of their convictions. This model, of a health mission, is appropriate both because protagonists had the backing of church and secular authorities in their conviction of rightness, and because they themselves employed the language of religious metaphor: to invoke the words of Lady Cilento, theirs was a 'ministry' of saving babies and baby life. The movement was bound by the mission to save, yet divided by

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3Armstrong, Political Anatomy of the Body; Reiger, Disenchantment of the Home
4Cilento, Lady Cilento: My Life
sectarian warfare. This interpretation differs from Reiger’s sequence by which professionals replaced ‘bourgeois’ reformers. My evidence does not support the contention that the professionals undermined the notion of the family as a haven from the cold public sphere. The doctors and nurses in the movement themselves were of reforming habit of mind.

The power of Truby King’s contribution lies less in his methods than in his message and his pedagogy. He put mothers and babies on the agenda through his official influence, by making New Zealand a model for Australia, and through his ‘unofficial’ influence, for example through the magazine articles by his nurses. He pushed the whole issue of infant welfare to the forefront of people’s awareness. His audiences did not have to agree with him to know that what he was saying was important.

Mothercraft campaigners’ intentions were good; much of the advice was sensible in its essential principles of fresh air, plain food and cleanliness; and the central message was irrefutable that breast feeding is best for the infant. The claims for increased rates of breast feeding as the explanation of the movement's successful contribution to the infant mortality decline, however, proved unfounded. Mothers’ responses and statistics from baby health centres in Sydney and Melbourne suggest that until 1930 the proportions of babies breast fed remained fairly stable. Rather the evidence supports McCalman’s argument that the 1930s marked the beginning of the end of easy breast feeding in Australia, and Reiger’s finding that breast feeding declined as the movement expanded. My study reinforces the paradox that the strict rules and pressure imposed on mothers to breast feed could have contributed to the rise of bottle feeding.5

This thesis, too, offers support for the argument proposed by Lewis on the basis of the Sydney evidence, that a safe supply of milk did not play a

5McCalman, Struggletown; Reiger, Disenchantment of the Home
major part in the decline. Mothers tended to find the centres most helpful when they were bottle feeding; but the evidence of the movement's contribution to safer artificial feeding is contradictory, for while the centres advocated dried milk products in hot weather, the Victorian figures reveal that in practice the centres encouraged women to use 'fresh' milk formulae (though the milk was boiled). Patent foods were expensive, and the move away from condensed milk and biscuits, resorted to by the working classes, came with rising living standards.

Australian infant health authorities professed a concern with the practicalities of the mother in the house; many of them noticed that Truby King's appeal was primarily to the well-to-do, when in reality all brands of rules were difficult to carry out for poor mothers, without fly screens before the 1930s, without ice chests and before the refrigerators and pasteurised, bottled milk of the 1950s. Because the regimens were intended to break the cycle of poverty and infant mortality, they made more sense for mothers who escaped the circle altogether of deprivation and disease - middle-class women, who had been limiting their families since at least the 1880s. The infant welfare centres, and the Lady Gowrie Child Centres, best served those who were already well served.

Mothers needed material and educational resources, space, time and a secure income to follow the routines; constraints had to be removed first, both within the home and in the public environment. Mothercraft institutions were predicated on rising working-class 'respectability', which presupposed an economic floor, and on sanitary improvements which reduced the dangers of faecal contamination of the baby's food on weaning. In addition, smaller families permitted the elaboration of rules which were demanding on the mother. The probability that mothers would attend the

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6Lewis, "Populate or Perish"
centres increased with average family size reduced to two, as fewer daughters had experience of surrogate mothering in large families, while mothers of three or more children tended to have more confidence in their own judgment. These findings are broadly consistent with the theses of Olssen and Reiger that mothers who had lost their family support were more likely to welcome and to follow advice. But they diverge from Reiger's summary that by the 1930s most mothers 'were under the sway of these new authority figures'.

My respondents dated the 'clinic era' from the 1930s and 1940s, indicating a later impact: women, in any event, continued to consult their own mothers.

In my findings, it remained customary for mothers to listen to their own mothers, and in the end to use their own discretion. What mothers did depended on their health and social circumstances, which ultimately decided the result. These findings corroborate Mechling's point that prescriptions are not the same as practices, and that exposure to books depended on women's socio-economic status. Results attributed to the movement were the product of the behaviour of mothers whether or not they followed advice.

At the beginning, I established that this thesis has some pertinence to the McKeown debate about the relative role of living standards (defined as food, environment and behaviour), public health and clinical medicine in the historic mortality decline. That mothercraft strategies did not contribute as powerfully to the decline in infant mortality as presented in the historiography of infant welfare is broadly consistent with McKeown's thesis, and with the argument of Powles in Australia, that general economic and social changes had a greater impact on health chances and life

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7 Reiger, *Disenchantment of the Home*, p.151; Olssen, 'Truby King and the Plunket Society'
8 Mechling, 'Advice to Historians on Advice to Mothers'
expectancies than deliberate efforts to control disease. At the same time, the suggestion that the movement did not make a strong independent contribution to the decline does not conflict with the recent revisions which re-emphasise the role of sanitary improvements in the late nineteenth century.

Indeed it complements them, for I have argued that the interventions moved down a logical chain; the fading of the 'urban-sanitary-diarrhoeal effect' as the urban public environment grew cleaner was a prerequisite of mothercraft campaigns. Mothers could not, in fact, be held responsible for their infants' survival chances until the worst environmental filth and feculence were removed from the yards and the streets. The evidence suggests, too, a role for infant welfare in the care of the low birth weight infant in the maternity hospital. Thus it can be argued that the movement reinforced demographic change; though the course of the downward trend in infant mortality, the lag in the 1930s compared with the preceding and following intervals, in the late 1920s and in the war years, indicates a greater role for the synergistic effects of economic and social change.

It is likely that the end of Australia's worst drought in 1903 diminished biological opportunities for the spread of organisms, though the relative roles of raised resistance and reduced exposure in diminished infant mortality are debatable. It is plausible that women's education was pivotal to the decline; I have suggested not through literacy, but by enhancing women's identity clarification, which influenced their children's chances of life through child care variables. This thesis has not been able to explore the implications of infant welfare as a movement of educated women, other than to surmise that this too illustrates how the regimens were attractive to people of like ideals. Mothers are, at minimum, a missing link in the

9McKeown, Modern Rise of Population; Powles, 'Keeping the Doctor Away'
10See chap 1
puzzle of what precipitated the transition in the infant death rate, and at most they are pivotal to the decline.

At a confluence of fields, it is usual for scholars to behold the 'public child' as perceived by the state, the medical profession and infant health leaders as the 'locus of mortality transition' and to regard the role of the state as decisive. My study raises the possibility that the 'private child' played a greater role in the infant mortality transition than suggested by van de Walle and van de Walle. Consistent with the latest revisions to the McKeown thesis, I suggest that future research ought to investigate the contribution of the fertility decline and women's education. To conclude, the infant welfare movement capitalised on the opportunities represented by rapid demographic change, on an already fallen and still falling infant mortality rate, and on the decline in fertility which also had its beginnings in the 1880s. Mothers of smaller families, living in cleaner environments, with the ambition born of having been to school, had more space and time to be fastidious - to the benefit of their children.

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11van de Walle and van de Walle, 'The Private and the Public Child'; Woods, Watterson and Woodward, pt 2
APPENDICES

1. The Raw Data of Infant Mortality and its Presentation

2. Infant Mortality in Australia and Three English-Speaking Countries, 1870-1950

3. Infant Mortality in Various Countries, 1906-1948

4. Infant Mortality Decline by Sex, Australia, 1880-1982

5. Fertility Data

6. Women as Buffer:
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7. Mothers' Written and Oral Evidence: Samples and Methods


9. Maternal Mortality Rates
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   B. Deaths from Septic Abortion, Puerperal Sepsis and Other Puerperal Causes, Australia, 1910-1969

10. Percentage of Population in Each State Under Five Years of Age, 1881-1921
APPENDIX 1
The Raw Data of Infant Mortality
and its Presentation

The infant mortality rate is the number of deaths during a specified period (in this thesis, a year) of live-born infants who have not reached their first birthday, divided by the number of live births in the period, expressed per 1000.

1. Source of numerator (infant death) and denominator (live birth) data

a) Data cited on infant mortality are from published sources, specifically the Australian Bureau of Statistics [Commonwealth Bureau of Census and Statistics], Demography Bulletins, and Statistical Registers and Year Books, as listed in the bibliography under Published Official Records. Figures 6, 7, 14, 15 and 17, and Tables 1 and 5-20 are reproduced from contemporary primary sources, as listed in the figures and tables.

b) Changes in completeness of recording:
There was no change in the period in question of the definition of a live birth. However there were possible changes in completeness of recording, with improvements in registration of deaths and births.

c) Changes of classification:
Official statistics of numbers of deaths by cause were available from 1875 in New South Wales, 1853 in Victoria, 1870 in Queensland, 1856 in South Australia, 1879 in Western Australia and 1869 in Tasmania. These statistics improved with improvements in diagnosis. Australia has followed the successive revisions of the International List of Causes of Death, and consequently the statistical comparability of the returns has been affected by changes in classification of causes of death. These particularly affect data on infant diarrhoea and on prematurity. The raw data on attributed causes must therefore be treated with some caution.

Figure 7 illustrates some of these problems. Changes in classification cause us to query whether the big drop in the death rate from diarrhoea and enteritis among people over two years in the 1880s was real, and likewise the drop recorded for children under two early this century. Dr J.H.L. Cumpston observed in the 1920s that the 1885 classification transferred many deaths over two from diarrhoeal diseases to other groups, so that the death rates in that age period appeared to drop suddenly after 1885. The reported death rates under two, he wrote, 'declined slowly until 1906, when there was a definite fall, after which the death-rates declined steadily to about 20 per 100000. Even this decline should be accepted with some reserve as it coincides too precisely with the adoption, in 1906, of the new international nosological classification.' Cumpston was referring to the international (Bertillon) system, adopted in New South Wales in 1906 and in other states.
from 1907 to 1913, under which diarrhoea and enteritis deaths were combined. In addition, the denominator in Figure 7, of the population in New South Wales, is inappropriate for a discussion about infants. Nonetheless, we cannot mistake the remarkable downward trend. Changes in classification from 1903 to 1906 are clearly set out in Cumpston (edited by Lewis), *Health and Disease in Australia: A History*, pp.82-3.

The live birth and infant death data, as opposed to classification of causes, are generally considered unproblematic after the turn of the century. The contemporary evidence in Chapter 2, however, suggests that the mortality of the unwanted was under-reported.

2. The problem of short-term fluctuations around the long-term trend

Five-yearly moving averages were used to smooth annual fluctuations in the infant mortality rates in order to illustrate the underlying trend more clearly. The moving averages were then plotted on the log scale. The rationale for plotting the log of the smoothed rates, for example in Figures 1 and 2, is that if there were a constant change in the rate of decline of the infant mortality rates then one would expect the log of the smoothed rates to be a straight line with a negative gradient.

The five-yearly moving averages and the log of the smoothed rates were not plotted together on an overlaid semilog graph because little extra information was obtained in so doing. Instead, the log of the smoothed rates, representing the underlying trend, was plotted over the raw data of annual infant mortality rates to show, at once, the long-term trend, and the fluctuations in annual rates as recorded and interpreted by contemporaries.

The exception to the use of smoothed data is Figure 16, where annual data of infant mortality under one year, under one month and under one week were plotted on the log scale. Annual data were retained for the purposes of comparability with Figure 17, and because smoothing in this instance obscured the timing of the wartime changes in neonatal mortality.

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1Cumpston (edited by Lewis), *Health and Disease in Australia. A History*, p.226
## APPENDIX 2

Infant Mortality in Australia and Three English-Speaking Countries, 1870-1950

Rates per 1000 Live Births

<table>
<thead>
<tr>
<th>Year</th>
<th>Australia (excl. Aborigines)</th>
<th>New Zealand (excl. Maoris)</th>
<th>England and Wales</th>
<th>United States (white pop.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1870</td>
<td>111</td>
<td></td>
<td>160</td>
<td>(a) (b)</td>
</tr>
<tr>
<td>1871</td>
<td>104</td>
<td></td>
<td>158</td>
<td></td>
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<tr>
<td>1872</td>
<td>117</td>
<td>100</td>
<td>150</td>
<td>(Mass.)</td>
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<tr>
<td>1873</td>
<td>114</td>
<td>108</td>
<td>149</td>
<td>(1870-4) 170</td>
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<tr>
<td>1874</td>
<td>125</td>
<td>109</td>
<td>151</td>
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<td>1878</td>
<td>131</td>
<td>84</td>
<td>152</td>
<td>(1875-9) 156</td>
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<tr>
<td>1879</td>
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(a) 5-yearly averages, 1870-4-1910-14  (b) Massachusetts only
(c) Birth registration area  (d) All states from 1933

## APPENDIX 3

### Infant Mortality in Various Countries 1906-1948

Rates per 1000 Live Births

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(a) Excluding Maoris  (b) Excluding Aborigines  (c) Not available  (d) 1935-9  
(e) 1946  (f) White population only  (g) 1911-13  (h) 1942  (i) 1935-8  (j) 1947  (k)  
1940  (l) 1922-5  (m) 1938  (n) 1939  (o) 1945

Source: Commonwealth Year Book, 1951, p.619
APPENDIX 4
Infant Mortality Decline by Sex
Australia, 1880-1982

Decline by Sex, 1880-1950

Decline by Sex, 1880-1982

APPENDIX 5
Fertility Data


The tables on the following pages, reproduced from Ruzicka and Caldwell, 'Fertility', in UN ESCAP, Population of Australia, illustrate the decline in birth numbers. The best source on birth spacing is Larson, as above. She has drawn on Victorian data from the 1911 census, a Melbourne births sample and marriage sample to show lengthening birth intervals (Larson, chap 5).

As explained in Chapter 2, marital fertility is the most appropriate measure of the fertility decline because it rules out the effect of marriage patterns. The age-specific marital fertility rates for New South Wales, as tabulated by Ruzicka and Caldwell, End of Demographic Transition, p. 95, are given below.

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<td>101</td>
<td>101</td>
<td>67</td>
<td>65</td>
<td>55</td>
</tr>
<tr>
<td>1901</td>
<td>101</td>
<td>87</td>
<td>67</td>
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</tr>
<tr>
<td>1911</td>
<td>99</td>
<td>87</td>
<td>67</td>
<td>58</td>
<td>48</td>
</tr>
<tr>
<td>1921</td>
<td>99</td>
<td>87</td>
<td>67</td>
<td>58</td>
<td>48</td>
</tr>
</tbody>
</table>

Source: <sup>a</sup> Royal Commission (1904); <sup>b</sup> Report on the Vital Statistics (1912); <sup>c</sup> our calculation based on 1921 Census and Demography Bulletin 1920-1
Table 119. Average issue of married women, generations 1831-1836 to 1926-1931

<table>
<thead>
<tr>
<th>Generation (years of birth)</th>
<th>Census year</th>
<th>Age group at census</th>
<th>Average number of live births to a married woman surviving in the specified age group at the census</th>
<th>Children born to all marriages</th>
<th>Children born to existing marriage only</th>
</tr>
</thead>
<tbody>
<tr>
<td>1831-1836</td>
<td>1911</td>
<td>75-79</td>
<td>6.98</td>
<td>6.36</td>
<td></td>
</tr>
<tr>
<td>1836-1841</td>
<td>1911</td>
<td>70-74</td>
<td>7.02</td>
<td>6.48</td>
<td></td>
</tr>
<tr>
<td>1841-1846</td>
<td>1911</td>
<td>65-69</td>
<td>7.03</td>
<td>6.53</td>
<td></td>
</tr>
<tr>
<td>1846-1851</td>
<td>1921</td>
<td>75-79</td>
<td>6.77</td>
<td>6.25</td>
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</tr>
<tr>
<td></td>
<td>1921</td>
<td>70-74</td>
<td>6.75</td>
<td>6.31</td>
<td></td>
</tr>
<tr>
<td>1851-1856</td>
<td>1921</td>
<td>65-69</td>
<td>6.51</td>
<td>6.08</td>
<td></td>
</tr>
<tr>
<td>1856-1861</td>
<td>1921</td>
<td>55-59</td>
<td>6.44</td>
<td>6.07</td>
<td></td>
</tr>
<tr>
<td>1861-1866</td>
<td>1921</td>
<td>50-54</td>
<td>5.92</td>
<td>5.62</td>
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<tr>
<td></td>
<td>1921</td>
<td>60-64</td>
<td>5.74</td>
<td>5.40</td>
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</tr>
<tr>
<td>1866-1871</td>
<td>1921</td>
<td>45-49</td>
<td>5.25</td>
<td>5.02</td>
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</tr>
<tr>
<td></td>
<td>1921</td>
<td>55-59</td>
<td>5.12</td>
<td>4.84</td>
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</tr>
<tr>
<td>1871-1876</td>
<td>1947</td>
<td>65-69</td>
<td>4.57</td>
<td>4.36</td>
<td></td>
</tr>
<tr>
<td>1877-1882</td>
<td>1947</td>
<td>65-69</td>
<td>4.19</td>
<td>4.02</td>
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</tr>
<tr>
<td>1882-1887</td>
<td>1947</td>
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</tr>
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<td>1887-1892</td>
<td>1947</td>
<td>55-59</td>
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<tr>
<td>1892-1897</td>
<td>1947</td>
<td>50-54</td>
<td>3.03</td>
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</tr>
<tr>
<td>1897-1902</td>
<td>1947</td>
<td>45-49</td>
<td>2.77</td>
<td>2.77</td>
<td></td>
</tr>
<tr>
<td>1899-1904</td>
<td>1947</td>
<td>50-54</td>
<td>2.46</td>
<td>2.46</td>
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</tr>
<tr>
<td>1904-1909</td>
<td>1947</td>
<td>45-49</td>
<td>2.43</td>
<td>2.43</td>
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</tr>
<tr>
<td>1901-1906</td>
<td>1947</td>
<td>55-59</td>
<td>2.37</td>
<td>2.37</td>
<td></td>
</tr>
<tr>
<td>1906-1911</td>
<td>1947</td>
<td>50-54</td>
<td>2.40</td>
<td>2.40</td>
<td></td>
</tr>
<tr>
<td>1911-1916</td>
<td>1947</td>
<td>45-49</td>
<td>2.50</td>
<td>2.50</td>
<td></td>
</tr>
<tr>
<td>1916-1921</td>
<td>1947</td>
<td>45-49</td>
<td>2.69</td>
<td>2.69</td>
<td></td>
</tr>
<tr>
<td>1921-1926</td>
<td>1947</td>
<td>45-49</td>
<td>2.87</td>
<td>2.87</td>
<td></td>
</tr>
<tr>
<td>1926-1931</td>
<td>1947</td>
<td>40-44</td>
<td>3.10</td>
<td>3.10</td>
<td></td>
</tr>
</tbody>
</table>

Sources: Statistician's Reports, 1911 Census; 1921 Census; 1947 Census; 1954 Census; 1961 Census. 1966 and 1971 - adapted from tabulations supplied by the National Population Inquiry.

Table 120. Average issue of wives and percentage distribution by the number of children ever born\textsuperscript{a} to them; selected generations born between 1836-1841 and 1921-1926

<table>
<thead>
<tr>
<th>Generations (year of birth)</th>
<th>Average issue\textsuperscript{b}</th>
<th>Percentage of wives with the number of children</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0 1 2 3 4 5 6+</td>
<td></td>
</tr>
<tr>
<td>1836-1841</td>
<td>14.1 4.2 4.2 5.0 5.6 6.8 60.2</td>
<td></td>
</tr>
<tr>
<td>1856-1861</td>
<td>11.4 5.4 6.5 8.1 9.3 9.6 49.8</td>
<td></td>
</tr>
<tr>
<td>1867-1872</td>
<td>11.2 9.0 12.0 13.8 12.3 10.4 31.3</td>
<td></td>
</tr>
<tr>
<td>1877-1882</td>
<td>10.3 11.0 15.7 15.4 13.5 10.0 24.0</td>
<td></td>
</tr>
<tr>
<td>1887-1892</td>
<td>10.4 13.8 19.6 17.3 13.0 8.7 17.1</td>
<td></td>
</tr>
<tr>
<td>1897-1902</td>
<td>13.1 17.3 23.3 17.4 11.2 6.7 11.0</td>
<td></td>
</tr>
<tr>
<td>1906-1911</td>
<td>18.5 16.8 24.5 17.5 10.2 5.1 7.3</td>
<td></td>
</tr>
<tr>
<td>1911-1916</td>
<td>14.7 16.0 26.4 19.2 11.1 5.6 7.0</td>
<td></td>
</tr>
<tr>
<td>1921-1926</td>
<td>8.9 12.2 27.4 22.4 14.3 7.2 7.7</td>
<td></td>
</tr>
</tbody>
</table>


\textsuperscript{a} Only children born alive to the current marriage.

\textsuperscript{b} Wives aged at least 45-49 years at the time of the census, except generations 1921-1926 who were 40-44 years of age at 1966 census.
APPENDIX 6

WOMEN AS BUFFER

A. Age Specific Death Rates of Women - 20 - 44
   1921-1965

Rates per 1000 of population at that age

<table>
<thead>
<tr>
<th>Age group</th>
<th>20-24</th>
<th>25-29</th>
<th>30-34</th>
<th>35-39</th>
<th>40-44</th>
</tr>
</thead>
<tbody>
<tr>
<td>1921-1925</td>
<td>2.8</td>
<td>3.4</td>
<td>3.9</td>
<td>4.8</td>
<td>5.3</td>
</tr>
<tr>
<td>1926-1930</td>
<td>2.7</td>
<td>3.3</td>
<td>3.5</td>
<td>4.3</td>
<td>5.0</td>
</tr>
<tr>
<td>1931-1935</td>
<td>2.1</td>
<td>2.7</td>
<td>3.0</td>
<td>3.8</td>
<td>4.4</td>
</tr>
<tr>
<td>1936-1940</td>
<td>1.9</td>
<td>2.4</td>
<td>2.7</td>
<td>3.3</td>
<td>4.1</td>
</tr>
<tr>
<td>1941-1945</td>
<td>1.4</td>
<td>1.9</td>
<td>2.2</td>
<td>2.9</td>
<td>3.7</td>
</tr>
<tr>
<td>1946-1950</td>
<td>1.0</td>
<td>1.3</td>
<td>1.6</td>
<td>2.2</td>
<td>3.2</td>
</tr>
<tr>
<td>1951-1955</td>
<td>0.7</td>
<td>0.9</td>
<td>1.2</td>
<td>1.8</td>
<td>2.7</td>
</tr>
<tr>
<td>1956-1960</td>
<td>0.6</td>
<td>0.7</td>
<td>1.0</td>
<td>1.6</td>
<td>2.4</td>
</tr>
<tr>
<td>1961-1965</td>
<td>0.6</td>
<td>0.7</td>
<td>1.0</td>
<td>1.5</td>
<td>2.3</td>
</tr>
</tbody>
</table>

Canberra, 1980, p.7
Ratio of male to female age-standardized death rates, Australia, 1908-76

**Note:** For the period 1914-18, only those deaths to members of the defence forces who died in Australia were recorded along with the civilian deaths in the national registers. During the Second World War, however, troops serving abroad were included in the estimates of the domestic population but their deaths were excluded (Lancaster, 1951a; 1952d; Lancaster and Wilcocks, 1950). In order to adjust for these practices, the 3,667 deaths from natural causes (i.e. other than due to operations of war) to members of the defence forces serving overseas were considered as civilian deaths, and a new set of mortality rates was then constructed for the resident domestic population. For an account of the distribution procedure, see Young (1969: 179).

*a Total 1971 population of Australia used as standard.*
APPENDIX 7
Mothers' Written and Oral Evidence:
Samples and Methods

Three samples of women form the basis of the written and oral evidence, which features largely in Chapter 7, as below.

1. Wonthaggi: Thirteen women in their eighties and nineties permitted interviews at Rose Cottage, attached to the Wonthaggi Hospital, and at Wonthaggi Hospital in May 1986. These interviews were arranged by Sister Helen Keltie. All of the women were from working-class backgrounds. This group of women was specially chosen in order to provide some comparability with the Wonthaggi evidence in the case studies of babies who had died as recorded in the reports from the Wonthaggi baby health centre from 1927 until the Second World War, and to ascertain any differences between the practices of working-class and urban middle-class women.

2. Correspondence per the *Australian Women’s Weekly*:

A notice was placed in the *Australian Women’s Weekly* and 20 women sent helpful replies. They did not respond to a questionnaire but wrote what they wanted. This general approach has its limitations, in that the replies were not structured and not all women gave their husbands' occupations at the time that their children were born, but it also has advantages in that no leading questions were asked and the replies have the freshness and openness of volunteered information. That the respondents were motivated to write, however, intrudes a bias into their evidence, of enthusiasm on the subjects of infant feeding and child rearing.

The method of selection in this case was not systematic, and the sample is too small to offer other than anecdotal evidence. Nonetheless, the respondents came from all states, except Tasmania, and from a range of backgrounds; husbands' occupations included panel beater, radio instructor, pilot, clerk, technician, professional, farmer, mechanic.

The replies in the *Weekly* sample helped frame the questionnaire attached.

3. Ten women were individually selected from a range of backgrounds, for their diversity of life experience: five women were married to men in working-class occupations and five to men in middle-class occupations; four were from New Zealand (in order to test the potential for future comparative research).
QUESTIONNAIRE

1. Name
2. Address
3. Occupation of husband at time children born (you don't have to answer this, or any other questions if you don't want to - this is just to spot any likely trends)
4. Dates children born
6. Did you have any ante-natal care?
7. Did you have anaesthesia?
8. Were there any complications?
9. How long were you in hospital?
10. Did the hospital have a nursery?

11. Did you breast or bottle feed? If you breast fed for a period, do you remember when your babies were weaned? Did you give any complements?
12. If you did bottle feed, or give complements, what did the bottle contain - ie what did you feed them?
   When did the babies first have solids?
13. Do you know at all what your own mother did? (Approximate dates would be helpful, eg if your mother had a baby in 1910.)

14. Several grandmothers and mothers I have talked to have mentioned condensed milk and biscuits. Have you heard of this? Can you tell me anything about condensed milk and arrowroot, whether just city people used them, and why?
15. Do you remember anything about the quality of the milk supply, and how milk was delivered - or did you buy it in a shop?

16. Did you feed on demand, or three or four hourly, 'on the dot', as some mothers have said?
17. If you fed by the clock, where did you become acquainted with this idea? (Some mothers have said the nursing home.)
   Did you feed at night? (My grandmother did, because her husband would not tolerate the crying.)
18. Whose advice did you follow, especially with your first child - your mother's or the clinic sister's - or a neighbour, or the doctor? Did you ask anyone at all, or were you afraid to ask if you were unsure what to do?

19. Did you read anything? Books, manuals? Do you recall any women's magazines or newspapers with advice columns? Several people I have talked to read nothing. Do you think people read newspapers and magazines then, or not?

20. If you went to the baby health centre, why did you go?
Did you dress baby up to go to the centre? Do you recall how you felt about going?

21. What did you think of the sisters?
If you went with the first baby, did things change with the second, or third?

22. Did your babies have dummies? I have heard about people putting sugar and honey on them, or using 'sugar tits' - sugar wrapped in cloth, given to the baby at night. Do you have any such stories?

23. Where did the baby sleep?
When, and how, did you toilet train your babies?

24. Did your boys have a 'little operation', and if so did you know anything about it beforehand?

25. Did you play with your babies, or were you in the 'leave it to cry' era?

26. Would you like to comment on how the Depression, or the War, affected your family? Looking back, do you think you were well fed, or not? Would the mother - you - have been affected before the baby?

27. Did you have an ice chest? Can you remember when you bought a fridge?

28. What type of stove did you cook on? Wood, coal, gas?
Did you have a flush toilet? When did the old dunny go?
How did you wash the baby's clothes?

29. Do you remember any sick babies, especially with diarrhoea or a respiratory illness?
What did you do if a baby were sick?

I would be grateful to know anything about what happened to mothers and babies, and what you thought about it all.
Thank you very much for your help.

Philippa Mein Smith
Research Scholar
History Department, RSSS
ANU, GPO Box 4, ACT 2601
APPENDIX 8

Neonatal Death Rates
1921-1975

Rates per 1000 Live Births

Neonatal - under four weeks

<table>
<thead>
<tr>
<th>Period</th>
<th>Early neonatal</th>
<th>Late neonatal - one week and under four weeks</th>
<th>Total neonatal - under four weeks</th>
<th>Post neonatal - four weeks and under one year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Under one day</td>
<td>One day and under one week</td>
<td>Total under one week</td>
<td></td>
</tr>
<tr>
<td>1921-25</td>
<td>n.a.</td>
<td>n.a.</td>
<td>22.0</td>
<td>7.9</td>
</tr>
<tr>
<td>1926-30</td>
<td>n.a.</td>
<td>n.a.</td>
<td>22.4</td>
<td>6.6</td>
</tr>
<tr>
<td>1931-35</td>
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<td>n.a.</td>
<td>22.3</td>
<td>4.9</td>
</tr>
<tr>
<td>1936-40</td>
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<td>n.a.</td>
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<td>4.6</td>
</tr>
<tr>
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<td>8.6</td>
<td>19.4</td>
<td>4.5</td>
</tr>
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<td>16.6</td>
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<tr>
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<td>6.2</td>
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<td>1961-65</td>
<td>7.3</td>
<td>5.1</td>
<td>12.4</td>
<td>1.6</td>
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<td>1966-70</td>
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</tr>
<tr>
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<td>6.7</td>
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</tbody>
</table>

Source: UN, ESCAP, Population of Australia, vol.1, p.164
APPENDIX 9
MATERNAL MORTALITY RATES

A. Australia and New Zealand, 1905-1950

Fig. V. Maternal mortality, 1905-50: Australia and New Zealand.

Source: Loudon, 'Maternal Mortality', p.190
### APPENDIX 9

**B. Deaths from Septic Abortion, Puerperal Sepsis and Other Puerperal Causes, Australia, 1910-1969**

Rates per 1000 Live Births

<table>
<thead>
<tr>
<th>Year</th>
<th>Post-abortive Infection</th>
<th>Criminal Abortion</th>
<th>(b)Puerperal Infections</th>
<th>Other Puerperal Causes</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1910-14 (a)</td>
<td>4.87</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1915-19 (a)</td>
<td>4.91</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>1920-4 (a)</td>
<td>4.96</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1926</td>
<td>1.64</td>
<td>3.66</td>
<td></td>
<td></td>
<td>5.30</td>
</tr>
<tr>
<td>1927</td>
<td>2.15</td>
<td>3.77</td>
<td></td>
<td></td>
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</tr>
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<td>1928</td>
<td>2.05</td>
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<td></td>
<td></td>
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<td>1.71</td>
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<td>5.08</td>
</tr>
<tr>
<td>1930</td>
<td>1.88</td>
<td>3.41</td>
<td></td>
<td></td>
<td>5.29</td>
</tr>
<tr>
<td>1931</td>
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<td>3.38</td>
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<td>0.76</td>
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<td>0.65</td>
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<td>5.14</td>
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<td>0.88</td>
<td>0.89</td>
<td>3.42</td>
<td>5.76</td>
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<td>1935</td>
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<td>0.88</td>
<td>0.80</td>
<td>3.10</td>
<td>5.30</td>
</tr>
<tr>
<td>1936</td>
<td>0.74</td>
<td>1.09</td>
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<td>3.09</td>
<td>6.00</td>
</tr>
<tr>
<td>1937</td>
<td>0.50</td>
<td>0.76</td>
<td>0.52</td>
<td>2.85</td>
<td>4.63</td>
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<td>1938</td>
<td>0.33</td>
<td>0.87</td>
<td>0.52</td>
<td>2.95</td>
<td>4.67</td>
</tr>
<tr>
<td>1939</td>
<td>0.27</td>
<td>0.66</td>
<td>0.39</td>
<td>2.77</td>
<td>4.09</td>
</tr>
<tr>
<td>1940</td>
<td>0.33</td>
<td>0.91</td>
<td>0.43</td>
<td>2.41</td>
<td>4.08</td>
</tr>
<tr>
<td>1941</td>
<td>0.16</td>
<td>0.68</td>
<td>0.31</td>
<td>2.49</td>
<td>3.64</td>
</tr>
<tr>
<td>1942</td>
<td>0.21</td>
<td>0.64</td>
<td>0.38</td>
<td>2.36</td>
<td>3.59</td>
</tr>
<tr>
<td>1943</td>
<td>0.28</td>
<td>0.52</td>
<td>0.36</td>
<td>2.17</td>
<td>3.33</td>
</tr>
<tr>
<td>1944</td>
<td>0.18</td>
<td>0.40</td>
<td>0.17</td>
<td>2.10</td>
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<td>1945</td>
<td>0.10</td>
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<td>0.10</td>
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<td>1950-4 (a)</td>
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<td>1955-9 (a)</td>
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<td>1960-4 (a)</td>
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<tr>
<td>1965-9 (a)</td>
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<td>0.26</td>
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(a) Averages included for sake of completeness
(b) Includes Post-abortive Infection and Criminal Abortion before 1931


The impact of abortion on the maternal mortality rate is discussed in Mein Smith, *Maternity in Dispute* and in Loudon, 'Maternal Mortality'
APPENDIX 10

Percentage of Population in Each State
Under Five Years of Age
1881-1921

<table>
<thead>
<tr>
<th>Year</th>
<th>NSW %</th>
<th>Vic %</th>
<th>Qld %</th>
<th>SA %</th>
<th>WA %</th>
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<tr>
<td>1891</td>
<td>14.67</td>
<td>13.04</td>
<td>15.33</td>
<td>14.13</td>
<td>13.73</td>
<td>14.64</td>
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<td>1901</td>
<td>11.73</td>
<td>11.01</td>
<td>12.49</td>
<td>11.05</td>
<td>11.23</td>
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<td>1911</td>
<td>12.22</td>
<td>10.94</td>
<td>12.19</td>
<td>11.61</td>
<td>12.42</td>
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<td>1921</td>
<td>11.40</td>
<td>10.13</td>
<td>11.93</td>
<td>10.86</td>
<td>11.95</td>
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<th>Full Form</th>
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<tr>
<td>AA</td>
<td>Australian Archives</td>
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<tr>
<td>AECA</td>
<td>Australian Early Childhood Association</td>
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<td>AJHR</td>
<td>Appendices to the Journals of the House of Representatives, New Zealand</td>
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<td>Australian Medical Association Library, Melbourne</td>
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<td>AMG</td>
<td>Australasian Medical Gazette</td>
</tr>
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<td>AMS</td>
<td>Australian Mothercraft Society</td>
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<tr>
<td>ANZJS</td>
<td>Australian and New Zealand Journal of Sociology</td>
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<td>AONSW</td>
<td>Archives of New South Wales</td>
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<td>ARSM</td>
<td>Alice Rawson School for Mothers</td>
</tr>
<tr>
<td>ATL</td>
<td>Alexander Turnbull Library, Wellington</td>
</tr>
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<td>BMJ</td>
<td>British Medical Journal</td>
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<tr>
<td>CBS</td>
<td>Commonwealth Bureau of [Census and] Statistics</td>
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<tr>
<td>CHO</td>
<td>Chief Health Officer</td>
</tr>
<tr>
<td>CMCP</td>
<td>City of Melbourne Council Proceedings</td>
</tr>
<tr>
<td>CPD</td>
<td>Commonwealth Parliamentary Debates</td>
</tr>
<tr>
<td>CPP</td>
<td>Commonwealth Parliamentary Papers</td>
</tr>
<tr>
<td>DGPH</td>
<td>Director-General of Public Health</td>
</tr>
<tr>
<td>DT</td>
<td>Daily Telegraph</td>
</tr>
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<td>FSP</td>
<td>Royal Commission of Inquiry as to Food Supplies and Prices</td>
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<td>FKU</td>
<td>Free Kindergarten Union</td>
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<td>HB</td>
<td>Health Bulletin</td>
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<tr>
<td>HS</td>
<td>Historical Studies</td>
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<tr>
<td>IMJA</td>
<td>Intercolonial Medical Journal of Australasia</td>
</tr>
<tr>
<td>JRAHS</td>
<td>Journal of the Royal Australian Historical Society</td>
</tr>
<tr>
<td>KTC</td>
<td>Kindergarten Training College</td>
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<td>MBHA</td>
<td>Mothers' and Babies' Health Association</td>
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<tr>
<td>MDNS</td>
<td>Melbourne District Nursing Society</td>
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<td>MJA</td>
<td>Medical Journal of Australia</td>
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<td>National Council of Women</td>
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<td>NZMJ</td>
<td>New Zealand Medical Journal</td>
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<td>Oxford English Dictionary</td>
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<td>PRO</td>
<td>Public Record Office, Laverton</td>
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<td>PS</td>
<td>Plunket Society, Hocken Library, Dunedin</td>
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<td>Description</td>
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<tr>
<td>RCDBR</td>
<td>Royal Commission on the Decline of the Birth-Rate and on the Mortality of Infants in New South Wales</td>
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<td>RCH</td>
<td>Royal Commission on Health</td>
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<td>RNZSHWC</td>
<td>Royal New Zealand Society for the Health of Women and Children (Plunket Society)</td>
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<td>RSWMB</td>
<td>Royal Society for the Welfare of Mothers and Babies</td>
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<tr>
<td>SHWC</td>
<td>Society for the Health of Women and Children of Victoria (Plunket System)</td>
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<td>SLV</td>
<td>State Library of Victoria</td>
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<tr>
<td>SMH</td>
<td><em>Sydney Morning Herald</em></td>
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<td>TAMC</td>
<td><em>Transactions of the Australasian Medical Congress</em></td>
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<td>VBHCA</td>
<td>Victorian Baby Health Centres Association</td>
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<td>Victorian Bush Nursing Association</td>
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<tr>
<td>WCTU</td>
<td>Women's Christian Temperance Union</td>
</tr>
<tr>
<td>VMWS</td>
<td>Victorian Medical Women's Society</td>
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<td>VPP</td>
<td>Victorian Parliamentary Papers</td>
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<td>WHO</td>
<td>World Health Organisation</td>
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Sample size: 30
Social histories only. Medical histories are absent (they were sent to Canberra so that the studies could be written).

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Sample size: 20
Social histories only. Medical histories absent.

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Medical histories only. Social histories destroyed, 1975.

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2/8565.1 Papers Relating to the Broken Hill Baby Health Centre, 1917-57
2/8565.2 Papers Relating to the Balranald Baby Health Centre, 1945-57
<table>
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<td>2/8566.1</td>
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<td>Photographs of Newtown, Alexandria and Bourke Street Baby Clinics, 1914</td>
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<td>Requests for Supply of Pamphlets on Advice to Mothers, 1914-17</td>
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