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Other Mothers' Milk: From Wet Nursing to Human Milk Banking in England, 1900-1950

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Abstract: This article investigates the continuities between wet nursing and the emergence of human milk banking in England in the first half of the twentieth century. It revisits the assumption that wet nursing had disappeared in England at the beginning of the twentieth century, and focuses attention on a continuing, albeit diminished, practice of private wet nursing after 1900 and the re-emergence of the institutional employment of lactating mothers in the interwar period. The article explores how changes in infant welfare preoccupations, medical views of breastfeeding and breast milk, and conceptualisations of the lactating body were embedded in the development from wet nursing to human milk banking.

Keywords: Wet nursing; human milk banks; breastfeeding; breast milk

In 1935, a set of quadruplets were born in St Neots in Cambridgeshire. Very premature, their lives hung in the balance. The paediatrician Donald Paterson knew what to do. He contacted Queen Charlotte's Maternity Hospital in London and arranged for expressed breast milk to be sent to St Neots twice a day. There, the milk was administered to the two baby girls and two baby boys. All four survived.¹ Three years later, Paterson wrote to the matron of Queen Charlotte's urging the establishment of a human milk bureau, declaring that the St Neots quadruplets would not have survived without the regular supply of breast milk.² In 1939, with funding from the National Birthday Trust Fund, a charitable foundation to combat the high incidence of maternal mortality, Queen Charlotte's opened the first large-scale human milk bureau in Britain, to provide breast milk to hospitals and private practitioners for the treatment

¹ *St Neots Advertiser* (6 December 1935), in A. Susan Williams, *Women and Childbirth in the Twentieth Century* (Phoenix Mill: Sutton, 1997), pp. 148-9.

² Donald Paterson to Edith Dare, 12 July 1938, National Childbirth Trust Fund, SA/NBT/J1/1, Archives and Manuscripts, Wellcome Library.

of ill or delicate babies.³ The collection and storage of human milk in bureaux decisively changed an age-old tradition of feeding babies other mothers' milk: wet nursing had become disembodied.

The history of wet nursing in England in the early twentieth century has received little attention hitherto, in contrast to other countries.⁴ In her groundbreaking study of wet nursing, Valerie Fildes explored its comparatively early decline in England over the course of the nineteenth century and suggested that the practice had virtually disappeared by the beginning of the twentieth century.⁵ The advent of human milk banking in England has also received limited historical consideration, with the notable exception of Susan Williams' examination of the foundation Queen Charlotte's human milk bureau in the context of the history of the National Birthday Trust Fund.⁶ This article seeks to elucidate continuities between the history of wet nursing and the establishment of the first human milk bureaux. Though private wet nursing was no longer extensively practised in the first decades of the twentieth century in England, it did not disappear. Moreover, the interwar period saw the return of the employment of lactating mothers by infant institutions. This overlooked continuity in feeding some babies with other mothers' milk proved to be critical to the emergence of the first human milk bureaux in the 1930s and 1940s. When Donald Paterson approached Queen Charlotte's Hospital after the birth of the quadruplets and before the opening of its milk bank, he not only thought breast milk essential to the babies' survival but also knew where to find it. This article will make sense of Paterson's actions by exploring changing early twentieth-century medical approaches to wet nursing, breastfeeding, and breast milk as a substance.

The creation of human milk bureaux in England in the 1930s and 1940s was fostered by a transnational backdrop of paediatric connections and knowledge exchanges. In the years leading up to the opening of the first human milk banks, physicians in England often pointed to their existence in the USA, Germany, Austria and Russia. The emergence of human milk banks in the USA, where by 1929 at least twenty cities had human milk stations, has been fruitfully explored by historians.⁷ The American example proved to be particularly influential for developments in England. In 1920, Catherine Chisholm of the Manchester Babies' Hospital travelled to the USA to study how hospitalised infants there were fed, showing particular interest in the Boston Wet Nurse Directory.⁸ Two years later, she started to employ wet nurses in her hospital. In the early 1930s, the chairman of the National Birthday Trust Fund, Julien Cahn, also visited the now re-named Boston Directory of Mother's Milk. At the end of the decade, he ensured that the Trust funded the foundation and operation of Queen Charlotte's

³ 'The National Birthday Trust Fund's Latest Activity: Human Milk Bureau at Queen Charlotte's Hospital', National Childbirth Trust Fund, SA/NBT/J1/2, Archives and Manuscripts, Wellcome Library; 'A Human Milk Bureau Service at Queen Charlotte's', *The British Medical Journal* (24 June 1939), p. 1298.

⁴ See, for instance, George D. Sussman, *Selling Mothers' Milk: The Wet-Nursing Business in France, 1715-1914* (Urbana: University of Illinois Press, 1982); Janet Golden, *A Social History of Wet Nursing in America: From Breast to Bottle* (Cambridge: Cambridge University Press, 1996); Jacqueline H. Wolf, *Don't Kill Your Baby: Public Health and the Decline of Breastfeeding in the Nineteenth and Twentieth Centuries* (Columbus: Ohio State University Press, 2001), ch. 5; Susanna Hedenborg, 'To Breastfeed another Woman's Child: Wet-Nursing in Stockholm, 1777-1937', *Continuity and Change*, 16 (2000), pp. 399-422.

⁵ Valerie Fildes, *Wet Nursing: A History from Antiquity to the Present* (Oxford: Basil Blackwell, 1988), especially pp. 204, 242. See also Ann Roberts, 'Mothers and Babies: The Wetnurse and Her Employer in Mid-Nineteenth Century England', *Women's Studies*, 3 (1976), pp. 279-93.

⁶ Williams, *Women and Childbirth*, ch. 7.

⁷ See Golden, *A Social History*; Kara W. Swanson, *Banking the Body: The Market in Blood, Milk, and Sperm in Modern America* (Cambridge, MA: Harvard University Press, 2014).

⁸ Catherine Chisholm, 'The Supply of Human Milk', *Maternity and Child Welfare* (April 1920), pp. 111-3. For the Boston Wet Nurse Directory and Mother's Milk Bank see Golden, *Social History*, pp. 184-9; Swanson, *Banking*, pp. 21-3.

human milk bureau, as well as financing a visit to Boston by the hospital's matron, Edith Dare, to receive training in running a milk bank.⁹

The interest in American human milk stations and the setting up of such bureaux in England derived from earlier practices of feeding babies other mothers' milk under medical supervision. These took place in the context of the early twentieth-century infant welfare movement's positioning of feeding practices as the pre-eminent determinants of infant health, which engendered new views on the practice of breastfeeding, the relationship between mothering and breastfeeding, and breast milk as a substance. These shifting understandings critically influenced the changing character of wet nursing in the early twentieth century. From the mid-eighteenth century onwards, as scholars have shown, breastfeeding had been conceptualised as flowing from, as well as expressing, maternal love.¹⁰ At the beginning of the twentieth century, new ideas on motherhood and breastfeeding appeared. Historians have previously explored the emergence of an ideology of 'scientific motherhood', in which expert medical knowledge was to inform the rearing of babies.¹¹ It was accompanied by the emergence of a 'science of breastfeeding', which represented the medical management of the maternal body as vital for the satisfactory production of breast milk. As this article will argue, this reconceptualisation underpinned a gradual separation of the act of breastfeeding from breast milk as a substance, a process which critically informed the changing ways of feeding babies with other mothers' milk in the first half of the twentieth century.

The article begins by establishing the continuation of wet nursing in England in the first decades of the twentieth century. It then explores the developing conceptualisations of breast milk that underlay feeding policies in newly opened infants' hospitals, leading to their employment of lactating mothers in the 1920s. It argues that the re-invention of wet nursing in babies' hospitals was a crucial precursor to the emergence of the first human milk banks, including, but not solely, Queen Charlotte's. Finally, the article turns to examine how an advancing technology of human milk mirrored and co-opted developments in dairy science in the 1940s. Human milk had become a nutritional and therapeutic product that existed separately from the breast that produced it; the age-old perceived relationship between wet nurse and her milk had been severed.

Wet Nursing after 1900: Feeding Babies in Health and Illness

At the beginning of the twentieth century, bottle feeding had become the common alternative to maternal breastfeeding.¹² Improvements in 'the methods of artificial feeding' were considered to be such that bottle feeding was seen as the easier option, and wet nurses were sufficiently difficult to obtain in England for doctors occasionally to send parents to France to

⁹ Julien Cahn to Edith Dare, 4 November 1938, National Childbirth Trust Fund, SA/NBT/J1/1, Archives and Manuscripts, Wellcome Library; Miranda Rijks, *The Eccentric Entrepreneur: Sir Julian Cahn - Businessman, Philanthropist, Magician & Cricket Lover* (Stroud: The History Press, 2008), p. 187; Williams, *Women and Childbirth*, 149-50.

¹⁰ Alexandra Shepard, 'The Pleasures and Pains of Breastfeeding in England, c. 1600 - c.1800', Michael J. Braddick and Joanna Innes (eds), *Suffering and Happiness in England 1550-1850: Narratives and Representations* (Oxford: Oxford University Press, 2017), pp. 227-46.

¹¹ For the concept of scientific motherhood, see, for instance, Rima D. Apple, *Perfect Motherhood: Science and Childrearing in America* (New Brunswick, New Jersey: Rutgers University Press, 2006); Hilary Marland, 'The Medicalization of Motherhood: Doctors and Infant Welfare in the Netherlands, 1901-1930', in Valerie Fildes, Lara Marks and Hilary Marland (eds), *Women and Children First: International Maternal and Infant Welfare, 1870-1945* (London: Routledge, 1992), pp. 74-96.

¹² Fildes, *Wet Nursing*, pp. 201-3. For an illuminating study of the development and design of the feeding bottle in France, see Gal Ventura, '"Long Live the Bottle": The Rise of the French Bottle-Feeding Industry in the Nineteenth Century', *Social History of Medicine* 32, no. 2 (2019), pp. 329-56.

find one.¹³ The decline of wet nursing over the course of the nineteenth century has been well documented.¹⁴ Nonetheless, the practice did not wholly disappear, and some babies continued to be fed with other mothers' milk after the turn of the century. Informal milk sharing appears in early-twentieth-century snippets of evidence, but it is likely that it occurred far more commonly than documentary evidence reveals. For instance, in 1927, a social worker from St Helens commented that it was common among working-class mothers in the area to leave their babies with neighbours. If these had babies themselves, they also nursed the babies they were minding.¹⁵ Formal wet nursing, however, was also still practised. Traditional ways of finding wet nurses for employment in middle- and upper-class households persisted until after the First World War. Lying-in hospitals in particular had long provided lists to wealthy mothers seeking to employ a 'respectable' wet nurse from their patients of poor, unmarried first-time mothers. Queen Charlotte's Lying-in (from 1927 Maternity) Hospital in London was particularly well-known for this.¹⁶ It provided such finding services until the end of the First World War, and possibly beyond.¹⁷ Advice to employ a wet nurse in cases of breastfeeding difficulties continued to appear in some infant care manuals. For instance, a manual written for the members of a middle-class infant welfare centre, in 1943 explained that if breastfeeding mothers were not producing enough milk, the shortage could be made up either by 'artificial' milk or through the 'services of a foster-mother'.¹⁸

In the first decades of the twentieth century, however, wet nurses were increasingly employed specifically for babies who were not thriving, often after modified cow's milk or commercial infant foods had already been tried.¹⁹ 'This practice [of wet nursing]', Donald Paterson and J. Forest Smith declared in their textbook in 1929, 'may at times be the only method of successfully rearing a weakly infant'.²⁰ Doctors and infant welfare centres often organised the employment of wet nurses. The Medical Officer of Health in Derbyshire, H.W. Pooler, for instance, described a case in 1928 of a two-month-old baby who had been taken off the breast a month earlier and 'many things had been tried since, without success.' Pooler reported that he arranged the employment of a wet nurse and that at five months the baby 'went on dried milk without any trouble'.²¹ The physician Bernard Myers also thought that 'many

¹³ 'The Suckling of Infants by the Mother', *The Lancet* (13 December 1902), p. 1641; The Editor, 'How Shall We Feed Baby', *The Baby's World* 1, no 3 (July 1910), p. 56; Edmund Cautley, *The Natural and Artificial Methods of Feeding Infants and Young Children*, 2nd ed. (London: J & A. Churchill, 1903), p. 335.

¹⁴ Fildes, *Wet Nursing*, ch. 12.

¹⁵ Mrs McGhie, 'Wet-Nursing: Discussion', *National Conference on Maternity and Infant Welfare 1927: Report of the Proceedings* (London, 1927), p. 21.

¹⁶ Thomas Ryan, *The History of Queen Charlotte's Lying-In Hospital* (London: Hutchings and Crowsly, 1885), p. 42; Jessica A. Sheetz-Nguyen, *Victorian Women, Unwed Mothers and the London Foundling Hospital* (London: Continuum, 2012), p. 142.

¹⁷ Queen Charlotte's Lying-in Hospital, *Annual Report* (1918), London Metropolitan Archives, City of London H27/QC/A/27/051 Queen Charlotte's Maternity Hospital; Ralph Vincent, 'Difficult Cases of Infant Feeding and Management', *The Lancet* (8 January 1921), p. 68.

¹⁸ The Chelsea Babies' Club, *Recipes for Food and Conduct* (Chelsea: The Chelsea Babies' Club, 1943), p. 18. The terms 'wet nurse' and 'foster mother' were often used interchangeably in the first decades of the twentieth century. Both terms could also denote women who expressed milk and sold it, rather than suckling another baby, but in this context 'foster mother' was increasingly commonly used in the interwar years.

¹⁹ See, for instance, the case history of a baby girl admitted on 11 March 1910 to Great Ormond Street Hospital. The mother had developed a breast abscess, and the baby had first been fed with 'all kinds' before being wet nursed. In this case, wet nursing did not improve the condition of the baby who was soon admitted to hospital. See 'Phyllis Hibberd', *HHARP: the Historic Hospital Admission Records Project* (<http://www.hharp.org>), Kingston University. I am grateful to Sue Hawkins for explaining to me in detail how to use the search function of the database.

²⁰ Donald Paterson and J. Forest Smith, *Modern Methods of Feeding in Infancy and Childhood*, first published in 1926, 2nd ed. (London: Constable & Company, 1929), p. 42.

²¹ H.W. Pooler, 'Observations on Breast-Feeding', *The British Medical Journal* (15 December 1928), p. 1087.

weak babies have been saved by this means who would probably have died otherwise'. In his 1930 textbook, he gave the address of a mother and baby home in London where he worked as a consultant physician and where 'wet nurses can often be obtained'.²²

The employment of wet nurses to feed babies who were not thriving took place in the context of the developing infant welfare movement, which singled out the high infant mortality rate as a national problem at the start of the century. What and how to feed babies became a central preoccupation of the movement. Based on the understanding that diarrhoea was a leading cause of infant death and that the nature of the food the infant received was a primary cause of the disease, infant hygienists increasingly highlighted feeding practices as critical determinants of infant health. At the turn of the century, several milk depots which provided 'clean' cow's milk to poor mothers were established. These, however, soon gave way to infant welfare centres, where working-class mothers were to be taught 'modern' ways of feeding and raising babies.²³

Some infant welfare centres set up a small number of cots for ailing babies,²⁴ but the early twentieth century also saw the establishment of infant hospitals and hospital wards. Children's hospitals had existed since the beginning of the nineteenth century - the first one opened in Paris in 1802 - but there had been an initial reluctance to admit children under two years of age, not only because they needed greater nursing attention, but also because it proved difficult to keep infants alive in hospitals.²⁵ In the context of the emerging infant welfare movement and the introduction of various aseptic measures, this rule was increasingly relaxed, and at the end of the nineteenth century, babies were admitted in growing numbers to hospitals.²⁶ Infant wards were soon added to some children's hospitals, and specialised hospitals for babies were founded. The latter were commonly 'dietetic' hospitals, borne out of the understanding that 'disorders of nutrition' led to babies developing into 'puny, ill-nourished, sickly children' and were responsible for a large proportion of infant deaths.²⁷

While there was agreement that nutritional disorders were a prominent cause of infant ill-health and death, there was no consensus among physicians what best to feed babies once admitted to hospital. As discussed earlier, doctors could recommend the private employment of wet nurses for ailing babies. Nonetheless, at the beginning of the century, there existed noticeable medical ambivalence towards wet nursing. The possibility of infection with syphilis was a concern, but there also was considerable apprehension that wet nurses' milk might not

²² Bernard Myers, *Modern Infant Feeding* (London: Jonathan Cape, 1930), p. 42.

²³ For the infant welfare movement, see Deborah Dwork, *War Is Good for Babies and Other Young Children: A History of the Infant and Child Welfare Movement in England 1898-1918* (London: Tavistock, 1987); Jane Lewis, *The Politics of Motherhood: Child and Maternal Welfare in England, 1900-1939* (London: Croom Helm, 1980); Fildes, Marks and Marland (eds), *Women and Children*; Pat Thane, 'Infant Welfare in England and Wales, 1870s to 19030s, in Michael B. Katz and Christoph Sachse (eds), *The Mixed Economy of Social Welfare* (Baden-Baden: Nomos 1996), pp. 253-78; Linda Bryder, '"Babies of the Empire": The Evolution of Infant Welfare Services in New Zealand and Britain in the First Half of the Twentieth Century', in Margaret Pelling and Scott Mandelbrote (eds), *The Practice of Reform in Health, Medicine and Science, 1500-2000* (Aldershot: Ashgate, 2005), pp. 247-62.

²⁴ See Naylor Barlow, 'Wet-Nursing: Discussion', *National Conference*, p. 21.

²⁵ For children's hospitals see, for example, Eduard Seidler, 'A Historical Survey of Children's Hospitals', in Lindsay Granshaw and Roy Porter (eds), *The Hospital in History* (London: Routledge, 1989), pp. 181-97; and E. M. Lomax, 'Small and Special: The Development of Hospitals for Children in Victorian Britain', *Medical History*, Supplement no. 16 (1996), pp. 1-217. For an exploration of contemporary discussions on the impact of hospital care on babies, see Katharina Rowold 'What Do Babies Need to Thrive? Changing Interpretations of 'Hospitalism' in an International Context, 1900-1945', *Social History of Medicine* 32, no. 4 (2019), pp. 799-818.

²⁶ The Evelina Hospital, for instance, started to admit babies unofficially in the 1890s, and in 1903 made it an official policy. See Evelina Hospital, *Annual Report* (1891), 8; *Annual Report* (1903), 16, LMA, H09/EV/A/24/011, Evelina Hospital.

²⁷ 'The Infants' Hospital', *Midwives Record*, 15, LMA, H02/WCH/Y/02/001 The Infants' Hospital.

be of good enough quality. The nineteenth-century anxiety that wet nurses' milk could convey undesirable personal qualities to the child, deriving from the perception of an intimate relationship between blood and milk, had disappeared.²⁸ However, new fears about the allegedly tainted milk of wet nurses appeared. At the turn of the century, some deemed that having a child out of wedlock (as was mostly the case with privately employed wet nurses) could be a sign of a 'constitutional hereditary taint' which risked endangering the wet-nursed child through polluted milk.²⁹ The most widespread concern, however, was that all breast milk, maternal or from a wet nurse, varied in quality and was easily spoilt. Age-old assumptions of breast milk as an alive and active substance, meant medical writings on breastfeeding and breast milk before the First World War continued to present stories of instances of babies dying after consuming spoilt mother's milk.³⁰ After the war, there was an enduring understanding that women's health, diet, levels of exercise, as well as emotional states, affected the composition and quality of their milk.³¹ This had profound implications for the conceptualisation of wet nursing. Some physicians advocated a close examination of the wet nurse's baby to establish whether her milk was sufficiently good. Eric Pritchard, a key figure in the infant welfare movement and a consultant physician at Queen Charlotte's, explained at the beginning of the century that this constituted a 'physiological test of the quality of the milk'.³² However, questions about the ability to produce good milk, coupled with confidence in the possibility of suitably modifying bovine milk in hospital settings, meant that at the beginning of the twentieth century doctors were not unanimous about the possible benefits of wet nurses' milk.

Across Europe, consideration of what to feed babies in newly founded infants' hospitals and wards became a critical issue. Some hospitals turned to employing in-house wet nurses. This was the case, for instance, with the *Maternité's* infant ward in Paris and the *Säuglingsheim* in Dresden, one the first infants' hospitals in Europe, founded in 1898.³³ It was not a solution adopted everywhere, however. At the *Charité* in Berlin, for instance, Robert Koch's bacteriological discoveries were particularly influential and underlay confidence in the possibility of feeding babies uncontaminated modified cow's milk.³⁴ In England, the first hospital for babies - the Infants' Hospital - also opted for bovine milk. Established in 1903 in London for the 'scientific treatment of the disorders and diseases of nutrition', treatment at the Infants' Hospital consisted of diet.³⁵ The senior physician, Ralph Vincent, decided that this diet was to be made up of modified cow's milk. Vincent was an advocate of 'percentage feeding', a method developed by Thomas Rotch in Boston at the end of the nineteenth century, which entailed the adjustment of cow's milk to create unique combinations of protein, fat and

²⁸ Valerie Fildes, *Breasts, Bottles and Babies: A History of Infant Feeding* (Edinburgh: Edinburgh University Press, 1986), 189; Deborah Valenze, *Milk: A Local and a Global History* (New Haven: Yale University Press, 2011), pp. 21, 155.

²⁹ For instance, 'How Shall We Feed Baby', *The Baby's World* 1, no 3 (July 1910): 56.

³⁰ Valenze, *Milk*, p. 21. See, for instance, Eric Pritchard, *Infant Education* (London: Henry Kimpton, 1907), pp. 46-7.

³¹ Katharina Rowold 'Modern Mothers, Modern Babies: Breastfeeding and Mother's Milk in Interwar Britain', *Women's History Review* 28, no. 7 (2019), pp. 1157-76.

³² Eric Pritchard, *The Physiological Feeding of Infants: A Handbook of the Principles and Practice of Infant Feeding*, 3rd rev. ed. (London: Henry Kimpton, 1909), p. 36.

³³ For wet nursing at the *Maternité* see Pierre Budin, *Le Nourrisson* (Paris: O. Doin, 1900); for the *Säuglingsheim* in Dresden see Arthur Schlossmann, 'Über die Fürsorge für kranke Säuglinge unter besonderer Berücksichtigung des neuen Dresdner Säuglingsheimes', *Archiv für Kinderheilkunde* 43 (1906), pp. 1-94.

³⁴ See Sigrid Stöckel, *Säuglingsfürsorge zwischen sozialer Hygiene und Eugenik: Das Beispiel Berlins im Kaiserreich und in der Weimarer Republik* (Berlin: De Gruyter, 1996), p. 121.

³⁵ Percy James Brebner, 'The Infants' Hospital', *Our Hospitals and Charities* (15 January 1910), pp. 5-7; 'The Infants' Hospital', 15, LMA, H02/WCH/Y/02/001, The Infants' Hospital. The hospital was opened in Hampstead in 1903 and relocated to Westminster in 1907.

sugar to suit children's individual, and changing, nutritional needs and digestive capacities.³⁶ Vincent insisted that babies in the Infants' Hospital ought not to be wet nursed. To him, it was an undesirable means of feeding any baby, let alone an ill one.³⁷ Breast milk, according to Vincent, was 'clean and pure' and free of the contaminations to which cow's milk was liable. However, as it was also variable in quality, breastmilk was the 'best' food for babies, but not an 'ideal' food.³⁸ If it was difficult to be certain that mothers' milk was of good quality, wet nurses' milk was wholly undesirable as it was quite impossible to ensure that it met a baby's requirements. Bovine milk, on the other hand, could be infinitely modified to suit individual infant needs.³⁹

Ralph Vincent maintained these views on wet nurses' milk into the 1920s.⁴⁰ By then, however, they were distinctly outmoded. After the First World War, there was an increasing emphasis on making breast milk available to some hospitalised babies, reflecting changing medical approaches to breastfeeding and breast milk. At the beginning of the century, the infant welfare preoccupation with feeding highlighted the unsuitability of widely-used sweetened machine-skimmed condensed milk, as well as farinaceous patent foods as infant nutrition.⁴¹ Dried milk started to be available for purchase and grew in popularity after the Great War, although physicians continued to favour modifying fresh milk well into the interwar period. While there existed a medical engagement with promoting suitable alternative foods, there was a strong emphasis on the promotion of breastfeeding. Studies of the beginning of the century had suggested that the infant death rate from all causes, but in particular from diarrhoea, was higher amongst bottle- as compared with breastfed babies.⁴² This led to that breastfeeding came to encouraged by infant hygienists as a fundamentally important factor in improving infant health, which continued into the interwar period.

Medical breastfeeding advocacy was characterised by the concept of 'scientific breastfeeding', by which feeding babies at the breast was to be informed by physicians' expert knowledge. Breastfeeding babies 'scientifically' was to ensure their healthy development. According to Eric Pritchard, scientific breastfeeding followed three rules: observance of cleanliness, regularity in times of feeding, and regulation of the amount taken (by means of timing feeds and test-weighing).⁴³ In 1938, he explained:

Good breast milk certainly contains every one of the many different elements which are necessary for the maintenance of sound nutrition, but it is not given to every woman to secrete milk of first class quality ... Again, as regards quantity...little reliance can be placed upon the accuracy of this For breast feeding to be a complete success there must be supervision both of the mother and the child.⁴⁴

³⁶ Wolf, *Don't Kill Your Baby*, p. 82.

³⁷ Ralph Vincent, *The Wife and Mother: A Book of First Principles for the Guidance of Young Married Women* (London: The Walter Scott Publishing Co., 1902), p. 114.

³⁸ Vincent, *Wife*, pp. 113-5.

³⁹ Ralph Vincent, *The Nutrition of the Infant* (New York: William Wood & Company, 1904), p. 74.

⁴⁰ Vincent, 'Difficult Cases of Infant Feeding and Management', p. 67.

⁴¹ Alice Reid, 'Infant Feeding and Child Health and Survival in Derbyshire in the Early Twentieth Century', *Women's Studies International Forum*, 60 (2017), pp. 112, 117; Linda Bryder, 'From Breast to Bottle: A History of Modern Infant Feeding', *Endeavour*, 33 (2009), pp. 54-5; P.J. Atkins, 'White Poison?: The Social Consequences of Milk Consumption in London, 1850-1939', *Social History of Medicine*, 5 (1992), p. 226.

⁴² For instance, George Newman, *Infant Mortality: A Social Problem* (London: Methuen & Co., 1906), ch. viii.; an often-cited later study was C. G. Grulee, H. N. Sanford and P.H. Herron, 'Breast and Artificial Feeding: Influence on Morbidity and Mortality of Twenty Thousand Infants', *Journal of the American Medical Association* 103, no. 10 (1934), pp. 735-9.

⁴³ Pritchard, *Physiological Feeding*, p. 20.

⁴⁴ Eric Pritchard, *The Infant: A Handbook of Modern Treatment* (London: Arnold, 1938), p. 14.

Breast milk was the best nutrition for babies, but only the scientific management of the lactating body ensured ideal quality and quantity.

The association of scientific breastfeeding with babies' healthy physical development in the context of the infant welfare endeavour to lower the mortality rate of babies positioned breastfeeding as a means of administering a nutritionally superior food. While doctors often continued to associate breastfeeding with fostering maternal devotion and happiness, it was not understood to flow naturally from maternal love or instinct. Rather, it was a craft that had to be learnt, which was a baby's birthright and a mother's duty. The process of thus conceptualising breastfeeding was accompanied by a surge of new research into breast milk as a substance, particularly after the end of the First World War. First performed in the late nineteenth century, chemical analyses of human and animal milk to establish ratios of fat, sugar and protein continued to be of much interest.⁴⁵ New attributes also came into view, including the immunological properties and vitamin content of human milk. It became a common proposition that mother's milk best suited the needs of infants because it was sterile, easily digested, contained immune bodies and the right amounts of vitamins.⁴⁶ The focus on the scientific management of the lactating body and on the constituent elements of breast milk made possible a separation of the act of breastfeeding from human milk as a substance. This underlay a new practice of employing lactating mothers in infants' hospitals in the interwar period.

Babies' Hospitals and Breast Milk in the 1920s and 1930s

The contradiction of the medical profession's unambiguous breastfeeding advocacy aimed at mothers of well babies, and the fact that hospitalised babies were fed with cow's milk came into focus in the years after the Great War. In 1922, Eric Pritchard was appointed as the new medical director of the Infants' Hospital in London. He recalled:

It had always seemed to me to be highly illogical to preach on the one hand that breast feeding was the best possible form of nourishment for an infant, and then to wean it the moment it came under the supervision of the hospital for the treatment of some disorder which was probably due to some nutritional disturbance.⁴⁷

In response, the Infants' Hospital started to offer breastfeeding mothers the option to stay with their babies by providing rooms for the purpose, or, alternatively, to visit several times a day to nurse their babies.⁴⁸ Other hospitals followed suit. The Newcastle Babies' Hospital, for instance, under the medical directorship of James Spence, set a room aside for breastfeeding mothers in 1925 and by 1931 had eight such rooms.⁴⁹ The conceptualisation of nursing as administering a superior food was also reflected in the fact that the London Foundling Hospital, which had ceased to place babies with wet nurses sometime between 1890 and 1910, began to

⁴⁵ T.B. Mepham, "'Humanizing" Milk: The Formulation of Artificial Feeds for Infants (1850-1910)', *Medical History*, 37 (1993), pp. 225-49.

⁴⁶ William Hunter, 'Lactation and Breast Feeding', *The British Medical Journal* (14 December 1940), p. 827.

⁴⁷ Eric Pritchard, 'Harley Street Calling: Some Reminiscences of a Medical Man', GC/49, Archives and Manuscripts, Wellcome Library.

⁴⁸ Pritchard, 'Harley Street'; 'The Infants' Hospital', *Nursing Mirror and Midwives Journal* (20 January 1923): 320, LMA, H02/WCH/Y/02/001, The Infants' Hospital.

⁴⁹ Hans Steiner, Elizabeth Greenacre and Alan Craft, *Sir James Spence: The Origins and Evolution of his Legacy* (Pickering: Blackthorn Press, 2016), pp. 14-5.

encourage mothers who gave up their babies to the Hospital to first breastfeed them in the interwar period.⁵⁰

As Valerie Fildes has highlighted, early-twentieth-century physicians noted that there appeared to be a 'special prejudice' against wet nursing in England.⁵¹ This was certainly an indication of the comparative rarity of the practice of wet nursing, but such comments also point to the growing importance given to breast milk in feeding babies. When physicians remarked on the relative absence of wet nurses, they mostly did so with regret. Infant hygienists increasingly decried the lack of human milk for babies who were not maternally breastfed, in particular for babies with acute nutritional disturbances and those who had been born prematurely. As a consequence, some babies started to be fed other women's milk in infant hospitals and wards. In 1925 the Newcastle Babies' Hospital, for instance, not only facilitated breastfeeding mothers to stay with their babies but also adopted a policy of feeding milk obtained from other lactating women to the severest cases among the babies admitted. James Spence believed he had adopted a unique method in treating baby patients, but this was not the case.⁵² The increasing importance given to human milk in the treatment of babies meant that in the 1920s and 30s, several hospitals implemented schemes of providing their most unwell babies with human milk. St Mary Abbott's Hospital in Kensington, for instance, fed some babies in the children's ward with milk collected in the maternity ward.⁵³ Collection of milk could occur on an *ad hoc* basis. Charis Frankenburg, a birth control campaigner and author of an infant care manual, thus recalled her visit to a dietetic hospital in London in the 1920s in her autobiography: 'Having given my baby her dinner, I was able to leave a large quantity of milk for less fortunate babies.'⁵⁴ Or in the early 1930s, the Mothercraft Training Home in Kensington reported on a case of a baby admitted at five weeks. While the mother was helped to re-establish lactation, breast milk was obtained for the baby from another mother staying at the Home, as well as Queen Charlotte's Hospital.⁵⁵

In an important development, however, the 1920s also saw the residential employment of 'wet nurses' or 'foster mothers' by hospitals. This practice was, for instance, adopted by the Royal Liverpool Babies' Hospital.⁵⁶ The Manchester Babies' Hospital (from 1935 the Duchess of York Hospital for Babies) became particularly well-known for it. Founded in 1914 by Catherine Chisholm, the first woman graduate in medicine from the University of Manchester, the objectives of the hospital were to provide treatment for babies suffering from disorders of nutrition and to conduct research into these.⁵⁷ At first, all babies in the hospital were fed with

⁵⁰ Tom H. MacKenzie, *The Last Foundling* (London: Pan, 2014), p. 32. The date of and reasons for the cessation of the employment of wet nurses by the London Foundling Hospital need further investigation. In evidence given to the Select Committee for the Protection of Infant Life in 1890, a representative of the Foundling Hospital explained the ongoing wet-nursing arrangements of the Hospital. However, a report by a medical officer in 1910 declared that the babies taken in were dry-nursed, and mostly arrived already having been bottle-fed. See *Report from the Select Committee on the Infant Life Protection Bill* (London: Henry Hansard and Son, 1890), 38-9; 'Medical Record of the Foundling Hospital, London 1877-1911' by WJ Cropley Swift, LMA, A/FH/A/18/010/006, Foundling Hospital. I am grateful to Eric Schneider for having drawn my attention to the medical report.

⁵¹ Fildes, *Wet Nursing*, p. 242.

⁵² *Annual Medical Report* (1925), quoted in Ursula Ridley, *The Babies Hospital Newcastle Upon Tyne* (Newcastle: Andrew Reid & Company, 1956), p. 9.

⁵³ Robert Carter, 'Wet-Nursing', *National Conference*, p. 11.

⁵⁴ Charis U. Frankenburg, *Not Old, Madam, Vintage: An Autobiography* (Lavenham: Galaxy Press, 1975), p. 129.

⁵⁵ The Violet Melchett Infant Welfare Centre; The Chelsea Health Society; the Chelsea Day Nursery; the Mothercraft Training Home, *Third Annual Report* (1932-1933), LMA, A/KE/C/02/05/023, Mothercraft Training Society.

⁵⁶ Margaret Bevan, 'Wet-Nursing: Discussion', *National Conference*, p. 19.

⁵⁷ Manchester Babies' Hospital, *Second Annual Report* (1915-1916), 5, The University of Manchester Library, Archive Centre. For the history of the hospital see Peter D. Mohr, 'Women-Run Hospitals in Britain: A

modified cow's milk. However, in a decisive break with the London Infants' Hospital's early policies of considering modified cow's milk as the most viable alternative to maternal breastfeeding, Chisholm came to think of breastmilk from a foster mother to be 'the next best feed to mother's milk'. Consequently, in 1922, the hospital started to employ lactating women whose milk was given to acutely ill and premature babies.⁵⁸

Chisholm belonged to a generation of doctors who were closely involved with the infant welfare movement, and she saw the foundation of the Manchester Babies Hospital as a response to the 'high rate of mortality existing among infants.'⁵⁹ The provision of human milk to the most ill babies was rooted in Chisholm's view of breast milk as a nutritionally superior food. An article she published in 1924 in *The Lancet* was tellingly entitled 'Breast-Milk Feeding'. Nonetheless, there was ongoing anxiety that the bodily fluid was not always optimal. To produce milk of good quality, mothers needed 'a full, well-balanced diet ... plenty of fresh air and sufficiency of exercise which does not fatigue, an adequate amount of sleep, and no worry'.⁶⁰ The Manchester Babies' Hospital's solution was to make lactating women reside on hospital premises. While it had long been the custom for physicians to ascertain the state of health of wet nurses before employment, the Babies' Hospital established unprecedented medical control over the production of human milk and the scientific management of wet nurses' bodies. Foster mothers were required to stay within hospital boundaries to monitor 'both their hygiene and their feeding.'⁶¹ Their emotional state was equally subject to hospital oversight: the women were allowed to keep with them and breastfeed their own babies. As this would keep them content, the 'chances of her milk remaining in a satisfactory condition' were greater.⁶² Following the contemporary understanding that infant feeding had to occur in strictly regulated intervals, the resident foster mothers were told when and how often to feed their own babies and when to express milk. In return, they received board and lodgings, and small weekly payments.⁶³

In this modern variation of wet nursing, hospitalised babies were not suckled at the breast; instead, the 'very precious' milk was expressed either by hand or with an electric pump, and given simultaneously to several ailing babies for some of their feeds.⁶⁴ This decoupled the dyad of wet nurse and foster baby, and feeding breast milk was dissociated from the extended care work of raising babies. Human milk continued to be viewed as intimately related to the lactating body, but as separate from the act of breastfeeding. The quality of the nurses' milk was now verified in the hospital laboratory, first at the start of employment and periodically thereafter.⁶⁵ At the same time, the foster mothers' own motherhood was not effaced. Unlike wet nurses in private employment who commonly had to board out their babies, the women employed by the Manchester Babies' Hospital were allowed to keep theirs.⁶⁶ Research from France, particularly Pierre Budin's work at the *Maternité*, had shown that adequately nourished women could 'secrete astonishingly large quantities of milk', putting to rest the belief that

Historical Survey Focusing on Dr Catherine Chisholm (1878-1952) and The Manchester Babies' Hospital (Duchess of York Hospital)', PhD, University of Manchester, 1995.

⁵⁸ Catherine Chisholm, 'Breast-Milk Feeding', *The Lancet* (1 March 1924), p. 428; Catherine Chisholm, 'Wet-Nursing', *National Conference*, 8-9; Manchester Babies Hospital, *Eights Annual Report* (1921-1922), 14; *Ninth Annual Report* (1923), pp. 14-5.

⁵⁹ Quoted in Mohr, 'Women-Run Hospitals', p. 215

⁶⁰ Chisholm, 'Breast-Milk Feeding', pp. 425-9.

⁶¹ Chisholm, 'Wet-Nursing', p. 9

⁶² Catherine Chisholm, 'The Care of the Premature Child', *The Child* (June 1921), p. 272.

⁶³ Chisholm, 'Wet-Nursing', p. 9.

⁶⁴ Chisholm, 'Breast Milk Feeding', p. 428.

⁶⁵ Chisholm, 'Wet-Nursing', p. 9.

⁶⁶ Fildes, *Wet Nursing*, p. 190. See also the evidence on wet nursing in the *Report from the Select Committee on Protection of Infant Life* (1871).

women could only feed one baby at a time.⁶⁷ The infant welfare concern with reducing infant deaths through breastfeeding led, in Chisholm's words, to the conclusion that 'one child must not be dispossessed of its rights for the sake of another'.⁶⁸ Still, the foster mothers were only permitted to breastfeed their own children three times a day, not for all feeds, a decision which was not uncontroversial.⁶⁹ By employing resident nursing mothers who expressed milk, hospitals such as the Manchester Babies' Hospital established physicians' control over the production of human milk, ensuring that the nurses' babies received breast milk, and guaranteeing that it was available at all times for baby patients, with doctors in charge of the amount and timing of their feeds. Recruiting women into the job, however, could prove difficult.⁷⁰ At the Manchester Babies' Hospital, this became increasingly apparent at different points during the 1930s, and when the Second World War broke out, it became impossible to convince women to take up residence in the hospital. The hospital responded by initiating a 'Mother's Milk Scheme' in 1940, whereby human milk was collected from the district.⁷¹ Wet nursing changed form again.

The First Human Milk Bureaux

The Manchester 'Mother's Milk Scheme' followed the example of other arrangements. A system of collecting milk from mothers residing in their homes, to be distributed to several hospitals, may have been set up in London in the late 1920s. It was certainly proposed: a committee of medical advisors to infant welfare centres, headed by the paediatrician Margaret Emslie, planned a scheme whereby breast milk would be collected locally and stored at the Infants' Hospital.⁷² There is little evidence as to the fortunes of the scheme, but the Infants' Hospital was in charge of a small-scale human milk bureau in 1938.⁷³ In 1939, Queen Charlotte's Hospital opened a human milk bureau that quickly became a much larger operation. The maternity hospital, as discussed above, had a long history of providing a finding service for wet nurses, but in the interwar period, Queen Charlotte's role in the wet nursing business changed: by the 1930s the hospital operated an *ad hoc* scheme of supplying human milk in response to broadcast 'SOS' appeals by doctors.⁷⁴ In 1936, the hospital's medical committee first proposed to expand this into a milk bureau, but this did not come to fruition, probably for financial reasons.⁷⁵ Two years later, however, Queen Charlotte's proceeded to establish a

⁶⁷ Pritchard, *Physiological Feeding*, p. 39.

⁶⁸ Chisholm, 'The Care', p. 271.

⁶⁹ Chisholm and Harold Waller, 'Wet-Nursing', *National Conference*, pp. 8-9; 11.

⁷⁰ For the Royal Liverpool Babies' Hospital's recruitment problems of wet nurses, see Bevan, 'Wet-Nursing', p. 20. For an exploration of the reasons behind the declining willingness of women to take up work as wet nurses in early-twentieth-century Stockholm, see Hedenborg, 'To Breastfeed another Woman's Child'.

⁷¹ Manchester Babies' Hospital, *Annual Report* (1930), pp. 15-6; *Annual Report* (1937), pp. 22-3; Duchess of York Hospital for Babies, *Twenty-Eight Annual Report* (1941), p. 6.

⁷² 'Wet-Nursing', *National Health*, vol. xix (1927), p. 479; Margaret Emslie, 'Wet-Nursing: Discussion', *National Conference*, p. 20.

⁷³ 'Extracts from Minutes of Meeting', 1 November 1938, National Birthday Trust Fund, SA/NBT/J1/4, Archives and Manuscripts, Wellcome Library.

⁷⁴ 'A Human Milk Bureau Service at Queen Charlotte's', *The British Medical Journal* (24 June 1939), p. 1298; 'Millionaire's Clinic Will Save Babies' Lives: Frozen Cubes of Human Milk Ready for Any SOS', *Sunday Chronicle* (12 March 1939), National Birthday Trust Fund, SA/NBT/P14, Archives and Manuscripts, Wellcome Library; 'Mr Wrigley', 17 August 1942, The National Archives: MH55/1457: Expressed breast milk: human milk banks

⁷⁵ Queen Charlotte's Hospital, Committee of Management Minutes, 6 April 1936, LMA, H27/QC/A/05/002.

human milk bureau with funding from the National Birthday Trust Fund.⁷⁶ Thus the 'National Mothers' Milk Bureau', soon renamed the 'Human Milk Bureau', was founded.⁷⁷

As was the case with the employment of lactating mothers in the Manchester Babies' Hospital, the establishment of Queen Charlotte's milk bank was seen as an extension of infant welfare work. In light of the declining birth rate, the bureau was of 'great national importance' as 'thousands of babies are lost during their first year throughout the country... and many others fail to make satisfactory development'.⁷⁸ Feeding other mothers' milk was grounded in the medical understanding of breast milk as the best infant nutrition, although research into the effects of its use in the treatment of ill and premature babies remained anecdotal.⁷⁹ Nutritional disorders continued to be a preoccupation, but there was an increasing focus on premature babies. There was a growing awareness that while the infant mortality rate had been steadily decreasing since the beginning of the century, the neonatal mortality rate had remained persistently high. This was increasingly attributed to prematurity.⁸⁰ A consensus emerged among paediatricians that for 'certain infants, sickly or premature', the nutritional qualities of human milk could be lifesaving.⁸¹

The milk for the newly set-up bureaux was expressed by women residing in their homes. In the case of Queen Charlotte's milk bank, mothers were recommended by the Medical Officers of several London boroughs, and nurses on motorcycles collected the milk daily.⁸² There were no shortages of women who provided milk. Breast milk was no longer sold by unmarried mothers living on hospital premises but by married women who lived at home. Receiving payment for expressed milk was considered a respectable means of supplementing the family income. Long gone were the days when wet nursing created anxieties about supposedly supporting unmarried mothers' immorality. Selling mother's milk was understood to not only benefit ill or premature babies in need. The women's own babies were also thought to benefit: the additional income alleviated economic strain and was a means to purchase more food and thus improve the mothers' health. This lessened the chances of inability to lactate.⁸³ The women were not under the same control of physicians as resident hospital foster mothers had been, although they continued to undergo medical and social vetting before being able to sell their milk by the ounce. Houses were checked for cleanliness and mothers for their standard of health. The milk was analysed in the laboratory not only for its chemical composition and the presence of contamination but also for adulteration.⁸⁴ The milk was no longer fed to particular babies: at the hospital, it was pooled, pasteurised and frozen into small cubes.⁸⁵

⁷⁶ Founded in 1928, the National Birthday Trust Fund primarily sought to influence government policy on maternity care but also funded Queen Charlotte's milk bank into the 1950s. For a history of the organisation see Williams, *Women and Childbirth*.

⁷⁷ It became the longest continually operating milk bank, which continues to supply donor milk on request to hospitals in north London and throughout the south east. See Gillian Weaver, 'Under the Spotlight: The Queen Charlotte's Hospital Milk Bank at 75', *Infant* 1, no. 1 (2015), pp. 20-3.

⁷⁸ Edith Dare, 26 October 1938, National Birthday Trust Fund, SA/NBT/J1/1, Archives and Manuscripts, Wellcome Library.

⁷⁹ Chisholm, 'Wet-Nursing: Discussion'; 'The Minister's Advisory Committee on Mothers and Young Children: Medical and Professional Sub-Committee', M.C. 7; TNA MH55/1547

⁸⁰ 'Conference on the Drying of Human Milk, 22 July 1943', TNA: MH55/1547.

⁸¹ 'The Minister's Advisory Committee on Mothers and Young Children: Medical and Professional Sub-Committee', M.C. 7; Joyce Wright, 'Human Milk Bureaux', Reprinted from the Monthly Bulletin of the Ministry of Health and the Public Health Laboratory Service, April 1947, TNA: MH55/1547.

⁸² 'A Human Milk Bureau Service', *BMJ*.

⁸³ 'A Human Milk Bureau', *BMJ*; Emslie, 'The Function of Breast-Feeding', p. 314.

⁸⁴ Doris Fisher, 'Freezing Human Milk - And How the Milk is Banked. The Duchess of York Hospital for Babies, Manchester', *Nursing Mirror* (5 May 1945), p. 63; 'The National Birthday Trust Fund's Latest Activity. Human Milk Bureau at Queen Charlotte's Hospital', National Birthday Trust Fund, SA/NBT/J1/2, Archives and Manuscripts, Wellcome Library; 'A Human Milk Bureau', *BMJ*.

⁸⁵ 'A Human Milk Bureau', *BMJ*.

Drying and Modifying Human Milk

After the closure of the Infants' Hospital breast milk scheme, Queen Charlotte's Maternity Hospital and the Duchess of York Hospital for Babies (previously the Manchester Babies' Hospital) housed the only human milk banks in Britain until the end of the 1940s. In a growing trend throughout the 1940s, however, other hospitals established smaller schemes for local use, mostly collecting milk in the maternity ward for use in the infants' ward.⁸⁶ There were attempts to establish further large milk bureaux to enable a more extensive provision of human milk, but in the event, these efforts were hindered by war conditions, and new milk banks were only set up after the war. In 1949, one was opened in Cardiff and the following year another in Birmingham.⁸⁷ However, a first attempt to establish further human milk bureaux was made in the early 1940s, when Julien Cahn of the National Birthday Trust Fund raised the issue with the Minister of Health, Ernest Brown, suggesting that 'human milk depots' should be established throughout the country.⁸⁸ That Brown responded with interest comes as no surprise.⁸⁹ Breastfeeding and breast milk were high on the agenda of the Minister of Health: the Advisory Committee on Mothers and Young Children, recently established by him, was in the process of putting together a report on how to increase the rate of breastfeeding, and the Medical Research Council was funding research on the impact of rationing on the composition of breast milk. When asked by Brown for an opinion in the matter of breast milk banks, the Advisory Committee on Mothers and Young Children swiftly agreed that increasing the availability of human milk for very ill and premature babies was desirable.⁹⁰ Discussing the issue, committee members used the term 'expressed breast milk (EBM)': the conceptual separation of lactating breast and human milk was complete.

Positioning human milk, once separated from the mothers who produced it, as a nutritional and therapeutic product that needed to be made available on a larger scale, invited the involvement of, and mirrored past developments in the dairy industry. This was not lost on Joyce Wright, a member of the Medical Research Council's scientific staff: '...hand in hand with dairy science, came the development of a human milk technology concerned with the collection, storage and distribution of mother's milk.'⁹¹ Just as, since the turn of the twentieth century, there had been a concern with the supply of 'clean' cow's milk to babies, there now crystallised a preoccupation with how to provide 'clean' human milk so that the 'product' was distributed in a 'safe and satisfactory' form.⁹² At the start of the century, feeding on the breast had been valued by physicians because 'human milk surpasses all rivals' not only in its composition but also 'bacteriologically, in requiring no sterilisation to render it harmless.'⁹³ Expressing and storing milk changed this. The developing human milk technology thus encountered novel problems: how to deal with contamination and how to safely transport human milk across the country. Investigations had led to the discovery of 'interesting things' about expressed human milk: it was 'always heavily infected', and human milk collections

⁸⁶ Advisory Committee on Mothers and Young Children, 'Final Report'; 'Dr Taylor', 16 July 1951, TNA: MH55/1547.

⁸⁷ Jean M. Macintosh to Dr Dorothy Taylor, 'The Establishment of Breast Milk Bank', 10 August 1944; 'Dr Taylor', TNA: MH55/1547.

⁸⁸ Letter from Viscount Greenwood, 5 August 1942; Ernest Brown to Julian Cahn, 20 August 1942, TNA: MH55/1547.

⁸⁹ Mr Wrigley, 11 August 1942, TNA: MH55/1547.

⁹⁰ Ernest Brown to Julien Cahn, 20 August 1942; 'Miss Puxley', 14 August 1943, TNA: MH55/1547.

⁹¹ Wright, 'Human Milk Bureau', p. 1.

⁹² Miss Puxley, 14 August 1943; 'Conference on the Drying of Human Milk, 22 July 1943', TNA: MH55/1547.

⁹³ James Stewart Fowler, 'The Feeding of Infants', in T.N. Kelnayack (ed.), *Infancy* (London: Robert Culley, 1907), p. 37.

yielded a product 'whose purity cannot be relied upon.'⁹⁴ Existing methods of collecting expressed breast milk, it became clear, would have to be improved if clean milk was to be supplied.⁹⁵

In an attempt to deal with the problems of contamination and transportation, the Advisory Committee on Mother and Young Children came up with a new idea. At the beginning of the twentieth century, infant milk companies had started to sell powdered milk, which proved an important step in the provision of sterile cow's milk products. The Advisory Committee in 1943 hence asked the Medical Research Council to explore the possibility of drying human milk.⁹⁶ The Council turned to the infant milk industry for help and invited A. F. Lerrigo, the Chief Chemist of Glaxo, to contribute to the research. However, it soon became clear that the methods used for drying bovine milk could not be applied to human milk, as it would require vast quantities.⁹⁷ Instead, the recently adopted method of freeze-drying blood serum was attempted, with Lerrigo analysing the results. In the event, it proved impossible to turn dried milk into a standardised product, and the prospect was rejected as too unreliable. The Medical Research Council agreed that to continue freezing milk was the best way forward.⁹⁸

Investigations into the preservation of human milk, however, raised a further issue. In the interwar years, vitamins, first discovered in the 1910s, had come to be considered essential for infant growth and healthy development.⁹⁹ Babies fed with modified or dried cow's milk commonly received vitamin C and D supplements in the form of orange juice and cod's liver oil to make up for deficiencies. In the late 1920s, the first baby milk products with added vitamins appeared.¹⁰⁰ Similar questions were now raised about expressed breast milk. Methods developed at the National Institute for Research in Dairying were applied to determine the vitamin content of stored human milk.¹⁰¹ In human milk, it became clear, vitamin C was 'very easily destroyed, even more so than that of cow's milk'.¹⁰² Hence, before stored human milk was given to babies, it was not only adjusted to body temperature but also enriched with 'necessary vitamin additions'.¹⁰³ The expressing mothers barely figured in this developing technology of human milk. Instead, mother's milk, once expressed, was not only analysed, but also modified in the hospital laboratory.

⁹⁴ 'Preservation', TNA: MH55/154; Committee on the Drying of Human Milk - Joyce Wright, 'Bacteriological Aspects of the Collection and Preservation of Human Milk', p. 10, TNA: FD1/4862: Drying of Human Milk.

⁹⁵ Medical Research Council, 'Conference on the Drying of Human Milk', 22 July 1943, TNA: MH55/1547.

⁹⁶ Dr Steell, 11 August 1944; Advisory Committee on Mothers and Young Children, 'Final Report', TNA: MH55/1547.

⁹⁷ Advisory Committee on Mothers and Young Children, Medical and Professional Sub-Committees, Third Meeting, 25 November 1942; TNA: MH55/1538: Advisory Committee on the Welfare of Mothers and Young Children. Medical and Professional Sub-Committee.

⁹⁸ Wright, 'Human Milk Bureau'; 'Dr Taylor', TNA: MH55/1547.

⁹⁹ J.C. Drummond, 'Some Aspects of Infant Feeding', *The Lancet* (12 October 1918): 482.

¹⁰⁰ Bryder, 'From Breast to Bottle', p. 57.

¹⁰¹ Prof. H.D. Kay to Prof. R.A. Peters, 1 November 1949, TNA: FD1/3138: Studies of Human Milk in Relation to Feeding.

¹⁰² 'Progress Report on the Study of the Composition of Human Milk in relation to the Feeding and to the State of Nutrition of Mother and Infant', carried out by S.K. Kon and E. H. Mawson, TNA: FD1/3136; Martha Dynski-Klein, 'Breast Milk Bank in Maternity Units', *British Medical Journal* (24 August 1946), pp. 258-9.

¹⁰³ Joyce Wright and Elsie M.C. Edwards, 'The Establishment of a Human Milk Bank in a Maternity Ward', MRC 46/342, TNA: MH55/1547.

Conclusion

In 1951, the psychoanalyst John Bowlby wrote a report for the World Health Organization in which he put forward the theory that long-term damage resulted from lengthy separations of young children from their mothers, including through hospital stays. He pointed out that there already existed a precedent of mothers being allowed to stay with their children in hospital, namely at James Spence's Newcastle Babies' Hospital.¹⁰⁴ In the 1920s and 1930s, mothers were indeed invited to stay there and at other babies' hospitals. However, while Bowlby saw this as a means of maintaining the bonds of infant-mother attachment, these policies first originated in a different preoccupation, as has been shown. Initially, only nursing mothers were offered the option of staying with their babies: the objective was to facilitate the continuation of breastfeeding. This new determination to make breast milk available to hospitalised infants was also reflected in policies of providing some babies with other mothers' milk, including by means of the hitherto overlooked practice of employing lactating mothers for this purpose in the interwar period.

While Valerie Fildes has written of the demise of the wet nurse in the early twentieth century in England,¹⁰⁵ this article has argued that there existed a diminished but continuing practice of private wet nursing, which was complemented by the appearance of the modern hospital wet nurse after the First World War. This provided the critical context for the foundation of the first human milk bureaux in the 1930s and 1940s. The lines of continuity between an ongoing practice of wet nursing and the foundation of human milk banks encompassed profound transformations of wet nursing, however. In the nineteenth century, wet-nursed babies were commonly either 'foundlings' or those of privileged mothers who could not or would not breastfeed. In the first decades of the twentieth century, on the other hand, it was mostly ailing babies who were fed other mothers' milk. The private employment of wet nurses for such purposes seems to have grown after the First World War, and eventually it led to the employment of 'foster mothers' in hospitals. These, however, only fed their own babies at the breast; other mothers' babies were given expressed milk. Hospital doctors controlled the timing, quantity and composition of breast milk fed to sick babies.

The return of the employment of nursing mothers by infant institutions was an innovation of the 1920s. In England, there was no direct continuity in the employment of wet nurses by the Foundling Hospital and infant hospitals. In contrast, in France the Paris Foundling Hospital ceased to wet-nurse babies at the end of the nineteenth century, but the *Maternité* employed wet nurses in its newly established infant ward.¹⁰⁶ In the USA a number of foundling homes and infant hospitals employed wet nurses in the first decades of the twentieth century.¹⁰⁷ While some babies continued to be fed by wet nurses in private households in England, in the first infants' hospital all babies were fed with modified cow's milk for the first two decades after its foundation in 1903. By the 1920s, the intense infant welfare focus on feeding as a key factor in healthy infant development, and on breastfeeding as administering a nutritionally superior food through the scientific management of the lactating body, however, meant that a growing number of hospitals ensured that some baby patients were fed with breast milk. Eventually, the increasing conceptual separation of breastfeeding and breast milk underpinned

¹⁰⁴ John Bowlby, *Maternal Care and Mental Health* (Geneva: World Health Organization, 1951), p. 147. For the post-war campaign for unrestricted parental visiting in children's hospitals, see Harry Hendrick, 'Children's Emotional Well-Being and Mental Health in Early Post-Second World War Britain: The Case of Unrestricted Hospital Visiting', in Marijke Gijswijt-Hofstra and Hilary Marland (eds), *Cultures of Child Health in Britain and the Netherlands in the Twentieth Century* (Amsterdam: Rodopi, 2003), pp. 213-42.

¹⁰⁵ Fildes, *Wet Nursing*, p. 190.

¹⁰⁶ Rachel Fuchs, *Abandoned Children: Foundlings and Child Welfare in Nineteenth-Century France* (Albany: State University of New York Press, 1984), p. 139; Budin, *Le Nourrisson*.

¹⁰⁷ Golden, *Social History*, ch. 7.

schemes of collecting breasts milk from the district, which also solved the growing difficulties of finding nursing mothers willing to take up residential employment in hospitals. In the advancing human milk technology, lactating women figured less and less. Instead, expressed milk was analysed, pooled, pasteurised, stored, and modified in hospital laboratories. The changing history of wet nursing and human milk banking in the first half of the twentieth century hence needs to be understood through shifting medical conceptualisations of breastfeeding and breast milk.

Later, when doctors foregrounded emotional aspects of the feeding relationship influenced by psychoanalytic theories on infant-mother relations in the post-war period, conceptual space for the employment of wet nurses was further narrowed.¹⁰⁸ Maternal feeding, the doctors Philip Evans and Ronald MacKeith declared in 1951, ‘clearly provides a closer, more intimate, and more satisfying relation’ between mother and new-born child than could be achieved by wet nursing.¹⁰⁹ By then, however, several human milk bureaux had long been in operation, and it had become common for hospitals to house their own local banks for infants in need. Some babies continued to grow on other mothers’ milk.

¹⁰⁸ Katharina Rowold, ‘If We Are to Believe the Psychologists....’: Medicine, Psychoanalysis, and Breastfeeding in Britain, 1900-1955, *Medical History* 63, no 1 (2019), pp. 61-81.

¹⁰⁹ Philip Rainsford Evans and Ronald MacKeith, *Infant Feeding and Feeding Difficulties* (London: J & A Churchill, 1951), p. 78.