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Knowing what's best for baby

Breast milk and the rise of the bottle

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"A Lady in Her Bath" (detail) by François Clouet, c.1571

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WHITE BLOOD

A history of human milk

224pp. Unicorn. Paperback, £15 (US \$22.95).

Lawrence Trevelyan Weaver

In the industrializing towns of Europe, physicians railed with some regularity against the complacency and carelessness, fads and fashions, that led mothers to rely on “mercenary milk” to feed their young. The milk, mostly purchased from the local cow keeper, was in fact indigestible to infants. It was filthy, too. Hugh Smith, an eighteenth-century English physician, enjoined people to open their eyes to the causes of London’s awful infant mortality (between 1757 and 1763, in one workhouse in St Giles, eighteen of 187 children survived to the age of three), and to “examine the success of such as suckle their own”. The flywheel of habit was mostly oblivious, however; cow milk set the stage for “gripes” and colic, which were then met with “mother’s kindness” or “mother’s quietness”, drams of gin poured down the baby’s throat or Godfrey’s patented cordial, an opiate. Death generally followed. A century later, in 1858, a *Lancet* editorial spoke, in Swiftian fashion, of “The Murder of the Innocents” from “ignorant feeding”. In Paris, meanwhile, visitors observed that wet nurses were kept much as cows in London: in dank, airless rooms, feeding four to five babies apiece. It took not quotidian observation, however, but mortality tables and another instrument of the enlightenment, the infant balance, to change the fate of babies in a concerted fashion. If to understand something you have to measure it, as Lord Kelvin put it, then the infant scale, first deployed in Paris in 1863, did just that by

documenting what was hidden in plain sight: infants fed on cow milk were starving to death, and even milk from a wet nurse could be inadequate. The scale's byproduct, growth charts, created norms against which babies could be judged and categorized.

As Lawrence Trevelyan Weaver shows in *White Blood: A history of human milk*, in the course of the nineteenth century, moralists, politicians and a burgeoning pediatrics profession saw human milk as the solution to a ragbag of ills: not only infant mortality rates, but puny or maldeveloped children, unfit conscripts, depopulation, even moral degradation and domestic instability. Weaver, a paediatrician specializing in nutrition and infant digestion, and a fellow in the history of medicine at the University of Glasgow, tracks how human milk has been valued and devalued across the centuries. His method is to use extended quotations that, as he puts it, enable original sources, mostly English and French, to speak for themselves. A trove of illustrations includes the fifteenth-century painting “Madonna del latte” by Jean Fouquet: the sacral breast nourishes a plump Jesus, and presumably this vision of a spiritual cornucopia provided comfort in a time of plague and scarcity.

Weaver's history starts with the ancient Greeks, when milk, understood as a humoral fluid, was blood that had been diverted to the fetus in utero and then discharged to the breasts, where it was whitened and vivified. Clement of Alexandria, a Christian theologian at the turn of the third century, described human milk as “the blood of the Word manifested as milk”, transmuted into flesh through “coction” in the infant's stomach. It was the giver of life. By the late medieval period,

alchemists viewed the body as a busy kitchen with the ancients' spirits now operating via fermentation, transmuting blood into flesh, semen or milk. And then, gradually, with the scientific revolution and its instruments, milk came to be understood as an inert corpuscular substance made of an infinite number of constituents, existing in starkly different ratios in cow and human milk. Eventually, these constituents were understood to be chemical entities - carbohydrates, proteins and fats - that supplied power and building materials. Vitamins were added to formula milk in the 1920s and bioactive substances in the 1950s, when milk was once again, as with the ancients, understood as a live substance. Weaver concedes that the Swiss company Nestlé and its many competitors were able to make a viable cow-milk "formula" in 1868 that didn't kill babies and even enabled them to grow. The infant scale suggested it was good enough if "clean", which meant having access to potable water, refrigeration and pasteurization.

In the developing world, where it was often mixed with unclean water, it did kill infants. The story, like that of Big Tobacco, has oft been told: capitalism by way of cleverly marketed infant formula claimed the lives of babies, the long-term health of those who survived, and the cultural mores around breastfeeding. Weaver refers to this as the second murder of the innocents. In 2000 he co-authored a statement on behalf of the World Health Organization which declared human milk "the best food for babies". He estimates that even now 1.5 million could be saved in the developing world if mothers breastfed for six months or more.

It is a shame that the author never mentions his own patients, or how

his practice has changed over time. Only about four in ten mothers in the UK still breastfeed at six weeks, let alone six months. One senses he feels a certain kinship with Hugh Smith and others he quotes, who condemned the hubris “of Nature’s journeyman” in his attempt to outdo “unerring Nature”. For Weaver, mother’s milk, the result of millennia of “co-evolution of maternal mammary gland and neonatal digestive system”, is “the holy grail”. Writers such as the economist Emily Oster have quibbled with the view, scouring the available data in order to argue that the apparent health benefits of human milk over formula may in fact have more to do with demographics: it’s the well-off who now breastfeed. Weaver does acknowledge that, from 1900 on, there’s been a precipitous decline in infant mortality rates despite the rise of the bottle, but that decline, he insists, doesn’t tell the whole story. Nor do the numbers on the scale. Indeed, he indicts formula not only for digestive and allergic ailments but for too-fast postnatal growth that may set the infant up for obesity and other diseases. As well as its preventative and curative properties, nursing may, he goes on, “be responsible for superior brain development and function, higher psychomotor function, visual acuity and cognition”. The hedging work of “may” allows for politics and preferences; Weaver’s are clear.

But maternal and infant interests are never perfectly aligned, which is undoubtedly why the infant has also had to evolve a suite of traits with which to seduce its caretakers. Of the 1920s - when the bottle, like contraception, became a source of freedom for many women, and mostly safe - Weaver writes: “it was a confusing time for doctors”. Earlier in the book, he quotes at length the second-century Greek physician Soranus of Ephesus on infant health but does not share one

of Soranus's more telling pieces of advice: women with resources should use a wet nurse "lest the mother grow old prematurely, having spent herself through daily suckling". Weaver himself, like some of his predecessors who hailed the maternal breast as "nature's bountiful urn", mostly ignores the somatic costs to the mother or wetnurse, instead writing that milk volume and composition are "remarkably resistant to variations and insufficiencies in maternal diet". He does, however, quote Soranus's counsel (and that of later physicians) on how to choose a wet nurse: "her breast should be of medium size, lax, soft, and unwrinkled". And she should be "a Greek and tidy", since her character, it was thought, would pass to the infant through her milk - hence, presumably, the idea that Rome's founders Romulus and Remus had been suckled by a predatory animal like a she-wolf. For the upper classes, not to use a wet nurse might have been regarded as a sign of poverty, overcommitment, or even vulgarity. We are not privy to the wet nurse's point of view, but her own babies were likely to be casualties of her profession.

In general, maternal breastfeeding seems to have gone in and out of fashion, somewhat like pointy shoes. Weaver includes a sixteenth-century painting by François Clouet of the bejewelled Diane de Poitiers, King Henri II's trend-setting mistress, taking a bath. She holds a passionflower, and her small, firm breasts are to be understood as fit for a king; a wet nurse demurely suckles Diane's infant in the unlit background. Wet nurses were also routinely used by Tudor and Stuart ladies, which meant maternal nursing could become a form of niche virtue-signalling among Puritan women. Weaver mentions Elizabeth Brand, the wife of a squire, whose tombstone, from 1636, proudly

states that her twelve children were “all nursed with her unborrowed milk”. By 1700 or so, less than half of English mothers breastfed their own, with the working class “also dependent on mercenary milk”, he writes. The result in London: two thirds of babies died. On the Continent, among Rousseau’s back-to-nature acolytes, maternal nursing would attain cult status as it had with the Puritans. Even so, at the time of the philosopher’s death, few Parisian babies were nursed at home. Most were sent to wet nurses in the country (hence pre-revolutionary Paris being known as a city without babies) and, in 1770-76, an estimated third of these were dead by six months.

Weaver includes Honoré Daumier’s “République” (1848), depicting Marianne, symbol of the Republic, suckling two muscular infants, her breasts politicized as a boundless cornucopia creating robust “enfants de la patrie”. But it was only, arguably, with the scale’s spread from the 1860s that maternal nursing, now a state-sponsored maternal and civic duty, could be closely monitored by a burgeoning pediatrics profession. The flow of milk was deemed so important it required specialist oversight. And then, gradually, in the course of the twentieth century, the milk obsession was over in Europe. The bottle was tacitly, sometimes officially, deemed the most appropriate method for modern lifestyles. Weaver’s book is thus part of another pendulum swing, dating to 1990 or so, when paediatricians once again began urging mothers to breastfeed (these days they are even allowed to do it in public, sometimes). As for formula’s ever closer approximation to the gold standard of breast milk, the startup Biomilq is trying to attain the holy grail by culturing “human mammary epithelial cells”. Weaver is scathingly sceptical.

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