

Science Brought to Mothering

Mothers and Medicine. A Social History of Infant Feeding, 1890–1950. RIMA D. APPLE. University of Wisconsin Press, 1988. xvi, 261 pp., illus. \$39.50; paper, \$16.25. Wisconsin Publications in the History of Science and Medicine, no. 7.

Between 1890 and 1950 American infant feeding practices changed dramatically. Both physicians and mothers came to accept bottled artificial milk as a positive, healthful substitute for breast milk. In this study Rima Apple argues that to understand this transformation historians must examine not only prescriptive medical literature but also the practices of scientific researchers, medical practitioners, infant food manufacturers, and mothers themselves.

From the 1890s to the 1910s, doctors, health reformers, and parents focused on nutrition as a major factor affecting infant mortality and morbidity. When the only alternative to mother's milk seemed to be wet-nursing, considered both morally and physically more dangerous, doctors and mothers turned to safe and predictable methods of artificial feeding. This concern with nutrition came to be a defining part of the work of early pediatricians. Thomas Morgan Rotch of Harvard Medical School experimented with artificial equivalents to breast milk; his complex "percentage method" allowed physicians to regulate precisely the proportion of nutrients and was flexible enough to suit each child's needs. In 1891 Rotch opened a milk laboratory in Boston where local doctors could have their "prescribed" formula made up. Although never a widespread model, this laboratory nonetheless, Apple argues, symbolized the desire of many physicians to make infant feeding exact, controllable, and scientific.

Infant food manufacturers such as Mellin's, Nestlé, and Horlicks similarly turned to science to promote their products. These companies began to urge physicians to rely on their products, sending them free formula calculators, samples, and charts. By the time the American Medical Association, spurred by the American Pediatrics Society, issued a resolution in 1932 banning infant food companies from addressing formula directions to anyone other than physicians, the commercial need for organized medicine's seal of approval was firmly established.

Apple explores the ways in which medical and commercial prescriptions altered the practices of mothers. She refuses to see women as simply passive recipients of medi-

cal advice. Women, she argues, intelligently weighed up the infant feeding advice available to them from medical baby books, family and neighbors, and popular magazines. By 1930, however, the range of authorities had narrowed, and the hospital, increasingly the locus of childbirth, became one of the most powerful influences. Anxious mothers, imitating hospital sanitary and feeding practices, used masks (sold by enterprising manufacturers) and placed their babies on strict schedules.

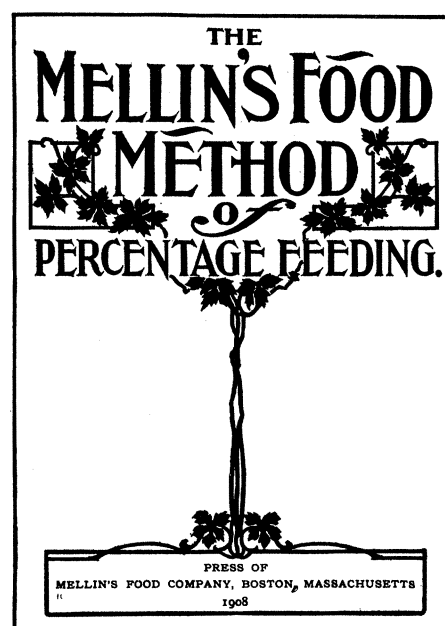
Apple reminds us that, just as the ideology of scientific motherhood offered women increased responsibility and knowledge, it denied them, by placing a greater reliance on the advice of scientific experts, power to control that knowledge. Further, many physicians felt uneasy about mothers who sought to educate themselves, and one practitioner warned that a mother armed with baby books and a college education "is sometimes more of a problem than is her baby" (p. 87). Most physicians believed that breast milk was generally superior to the bottle, but in practice they taught mothers about artificial foods. In promoting cow's milk, for example, one practitioner argued that "it is easier to control cows than wom-



The most exquisite cleanliness is necessary in the care of bottles and other utensils used in the preparation of a baby's food.

For this purpose, there is nothing quite so good as Ivory Soap. Dissolve a few shavings of Ivory Soap in a quart of hot water. Rinse the bottles with cold water, wash them inside and out in the Ivory Soap suds, and then scald with boiling water. Pitchers, bowls and spoons should be cleansed in the same way. Boil the rubber tops of nursing bottles once a day besides washing them turned inside out.

Ivory Soap advertisement giving instructions for the cleaning of baby bottles, *Ladies' Home Journal*, vol. 23, no. 9, 1905–06. [From *Mothers and Medicine*]



Title page of *Mellin's Food Method of Percentage Feeding* (Boston, 1908). The book was dedicated "To the Physicians of the United States who are taking an increasing interest in the science of Infant Feeding and have generously recognized the merits of Mellin's Food." [From *Mothers and Medicine*]

en" (p. 56). This analogy between human and animal mothers was not lost on women themselves. Indeed, some women clearly rejected physicians' occasional efforts to promote breast-feeding. During one unsuccessful attempt to teach new mothers breast-feeding techniques in a Cleveland hospital in the 1920s, a young physician recalled one woman protesting that the doctors "ain't gonna make no cow out of me" (p. 74).

This is a tightly packed study, and at times Apple implies more than she realizes. Her analysis of the reasons women chose the bottle over the breast could be expanded still further by a closer examination of the role played by the feminism of the 1920s and the sexual and aesthetic implications of the image of the flapper body. What, further, was the relationship between women's shifting work patterns and the autonomy the bottle offered? The study also should have explored differences within the medical profession, particularly the role that control over methods of infant feeding played in shaping the developing speciality of pediatrics.

Historians of science and medicine, pediatricians, and other clinicians will welcome this study. The author has a keen ear and eye; her integration of pictures and charts throughout the text shows a sensitivity to the meaning of visual material beyond simple illustration. Her interviews with mothers and male physicians also add an important dimension to this study. In a concrete and engaging way Apple demonstrates the criti-

cal appeal of science for both medical professionals and the public and explores its diverse and changing meanings, whether manifested in clinical research, the use of the laboratory, the precision and complexity of feeding methods, or the approval of professionals, be it the seal of the American Medical Association or a quotation from a physician appearing in an baby food advertisement. This book is an important contribution to our understanding of the relationship between prescription and practice, a thoughtful integration of visual, oral, published, and manuscript materials. Apple has given us a chance to hear the voices of ordinary women and their physicians as they tried to determine what was best for baby, mother, and doctor.

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The Nestlé Affair

Infant Feeding. Anatomy of a Controversy, 1973–1984. JOHN DOBBING, Ed. Springer-Verlag, New York, 1988. xviii, 169 pp. \$30.

This book is basically the history of a worldwide controversy, involving the infant food industry, medical scientists, and certain activist movements. In this controversy, activist groups charged the infant-food industry with marketing their infant formula so aggressively and persuasively that mothers who could have breast-fed successfully chose to use formula instead. This practice was particularly serious in developing countries where illiterate mothers could not read the instructions for safe formula preparation, often overdiluted the expensive formula to make it last longer, and unknowingly fed their infants formula that had become contaminated because of unsafe water supplies and lack of cleanliness and refrigeration. The activists charged that these circumstances led to marked increases in infant malnutrition, gastroenteritis, diarrhea, and mortality.

These serious charges were made against companies that had until then been generally viewed as making legitimate and important contributions to child health. The Nestlé Company, perhaps because it was so long established and well respected and had the largest share of the market in developing countries, was most directly charged and soon became the target of a prolonged consumer boycott of its products in the United States, Europe, and Asia. Throughout the controversy Nestlé has maintained that its products provide better nutrition than traditional substitutes for breast milk

and are intended only for infants who are unable to breast-feed for various reasons or whose feeding must be supplemented.

John Dobbing is a medical practitioner and scientist who has been an insider to the controversy in several ways. His research focus has been on the effect of undernutrition on infant brain growth and development; he has had contact in Uganda with Derrick Jelliffe, a leader of the activists, and with the Nestlé Company; and he participated in the meetings called by the World Health Organization and UNICEF to resolve the controversy. His first aim in this book is to provide readers of all backgrounds with a detailed and objective description of the controversy, so they will be able to judge for themselves. He begins by emphasizing that all participants in the controversy agree on the clear advantages of breast-feeding, provided it is possible. He uses a reasoned approach, showing sensitivity to both sides, yet critiquing the logic or methods used by either side when this seems deserved. A recurrent theme is that Nestlé, out of an increasing sense of corporate responsibility, changed its marketing policies in many ways, first in response to the activists' charges and then in an effort to implement the World Health Organization Code established in 1981, but that these efforts went largely unappreciated by the activists.

Dobbing's second aim is to delineate the process used to resolve this controversy, thereby providing, if not a model to follow, at least an example to study. To achieve these aims he enlisted the assistance of Maggie McComas, an American business writer and public affairs analyst interested in consumer movements, and Gabriel Veraldi, a French writer and investigative journalist interested in the relationship between industry and society. Both these authors had independently studied the controversy.

Infant Feeding begins with the activists' charges, presented by Veraldi and followed by Dobbing's medical and scientific commentary about them. A strength of the book is Dobbing's discussion of pertinent research methodology and insights important for interpretation of relevant research findings. For example, in addition to manufactured formula, many culturally based breast-milk substitutes exist; usually they provide inadequate nutrition and are susceptible to contamination, and often they are given in bottles. Yet bottle-feeding is generally used as a synonym for formula feeding, and studies comparing bottle-feeding and breast-feeding rarely describe the contents of the bottle. As another example, it must be realized that breast-fed infants who do poorly are often changed to formula, whereas for-

mula-fed infants who do poorly are rarely changed to breast-feeding. This selective dropout leaves breast-fed infants healthier as a group and adds sickly infants to those who are bottle-fed, yet this phenomenon is poorly controlled in comparisons of outcome for breast-fed and bottle-fed infants.

A weakness of Dobbing's commentary is the absence of a cohesive discussion of other factors known to be related to incidence and duration of breast-feeding. The reason given is that the causes are so multifactorial, interdependent, and complex that meaningful analyses cannot be done. However, this topic is relevant to the charges underlying the controversy and merits at least an overview presentation. Although several factors such as women working outside the home are mentioned now and then, one factor never mentioned is that increasing urbanization brings increasing hospital birth and frequently mother-infant separation after birth, with infants taken to central nurseries for most of their care. Because close mother-infant contact and frequent breast-feeding are known to increase prolactin levels, thereby promoting lactation, such separation may compromise breast-feeding to some extent, rendering mothers more susceptible to an inadequate milk supply and more likely to use infant formula, especially if they have received formula samples.

One potential source of error is the impression given by Dobbing that the incidence of breast-feeding has begun to increase in several Western countries. At least in England and the United States, this is not the case. The incidence of breast-feeding (with or without supplementation) in the United States decreased from 58% in 1985 to 54.3% in 1988, according to data from Ross Laboratories National Mothers Survey. Continued breast-feeding at 6 months decreased from 22% to 19.2%. Decreases have occurred in England as well.

The next five chapters, by McComas, detail the growing controversy, including its origins; the developing focus on Nestlé rather than all the companies involved; Nestlé's suit for libel; the U.S.-based boycott; political action led by Senator Edward Kennedy; international discussion under the aegis of WHO and UNICEF; and the adoption of an unprecedented international code, the WHO International Code of Marketing of Breast Milk Substitutes. Rather than a binding regulation, this Code took the form of a flexible recommendation that facilitated implementation but made enforcement difficult because it was subject to wide variations in interpretation. This causes problems, for example, in defining which infants need formula feeding or at least supplementation.

The next and final three chapters are by