MOTHERS & MOTHERHOOD
Readings in American History

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CONSTRUCTING MOTHERS
Scientific Motherhood in the Nineteenth and Twentieth Centuries

RIMA D. APPLE

In the past century and a half, the growing impact of science and medicine in women’s daily lives has dramatically transformed mothering practices as the emergence of the ideology of scientific motherhood has emphasized women’s increasing reliance on medical and scientific expertise. A compelling illustration of this change is the movement from breast-feeding to physician-directed bottle feeding in the United States between 1890 and 1930; but this change in infant feeding routines is merely one example of the significant shift in women’s mothering roles. This essay represents a preliminary analysis of the complex and dynamic relationships that led to mothers’ dependence on scientific and medical expertise and experts and focuses in particular on the United States experience. It investigates the various ways, including formal and informal educational structures, cultural icons and mass media, that women learned about mothering and about the shifting idealizations of motherhood.

Scientific motherhood is the insistence that women require expert scientific and medical advice to raise their children healthfully. As the ideology emerged in the nineteenth-century United States, a myriad of interested parties—including educators, social commentators, physicians, health reformers, and mothers themselves—promoted the idea that mothers needed to learn about science and medicine. Women were advised to seek out the most up-to-date and “scientific” information they could find. Doctors were popular sources, but so too were child-care manuals (produced by physicians, scientists, nurses, manufacturers, and lay writers), advice columns, and letters to the editor in women’s magazines and general interest journals; and the new field of domestic science or home economics offered classes at all levels of a girl’s education.


As scientific advice for successful child rearing gained in prominence, the source of this expertise slowly changed. In its early manifestations, scientific motherhood encouraged mothers to find and evaluate information for themselves, to be actively involved in decisions about the health of their families. By the twentieth century, the scientific motherhood ideology had been refined. Increasingly women were told not just that they needed to learn from scientific and medical expertise but that they needed to follow the directions of experts. This aspect of the ideology presented women with a tension-laden contradiction: it made them responsible for the health and welfare of their families, but it denied them control over child rearing. In other words, women were both responsible for their families and incapable of that responsibility. Two advertisements clearly illustrate this transition.

A 1885 Mellin’s Food advertisement (figure 1) from the child-care journal Babyhood is headed “Advice to Mothers” and the body of the copy cautions readers: “The swelling tide of infantile disease and mortality, resulting from injudicious feeding, the ignorant attempts to supply a substitute for human milk, can only be checked by enlightened parental care.” The advertisement goes on to say most reassuringly: “Men of the highest scientific attainments of modern times, both physiologists and chemists, have devoted themselves to careful investigation and experiment in devising a suitable substitute for human milk.” The result, of course, was Mellin’s Food, a food “worthy the confidence of mothers.”

In contrast, another advertisement published in Parents’ Magazine more than 50 years later (figure 2) has a young father objecting: “But your mother says he’s much too young for vegetables!” And the modern mother replies, “Well dear, you’d better argue that with Doctor Evans. He says babies do better if they have vegetables early in life.”

These two advertisements share several characteristics. Both are selling food products for infants; both seek to convince mothers to buy the product; both imply that use of the product will ensure good health for the baby; both suggest that science provides the best guide for raising children. Yet, despite these similarities, the two advertisements are quite dissimilar in form and tone. While both, to some extent, play on the emotions of the reader, the emotional content of the 1885 advertisement is more muted. It attempts to sell with gentle persuasion, informing the consumer of a problem, “the swelling tide of infantile disease and mortality,” and explaining in rather technical terms that “a compound suitable for the infant’s diet must be alkaline in reaction; must be rich in heat-producers, with a proper admixture of albuminoids of a readily digestible nature, together with the necessary salts and moisture.” It then claims that Mellin’s Food is the solution to that problem. It is a wordy advertisement, fairly typical of the day.
Advice to Mothers.

The offering of infantile diseases and retardation, resulting from improper feeding, the ignorance and lack of knowledge necessary to the child care, can only be checked by enlightened parental care.

If possible, mothers should note their children's health and every healthy mother should make the effort to keep their child healthy. Artificial food should never be substituted for the vitamin which nature has provided in the breast milk. But while it is essential that the healthy mother should know how to feed her child, for her own benefit and that of her baby, she should not force her child to have more than he can take. The amount of food, artificial food included, should be regulated, and other causes, such as illness, should be accounted for. In addition, the health of mother and child is, in all cases, of utmost importance.

We are all aware of the importance of nutrition. The need for proper nutrition is emphasized, and we are all aware of the importance of nutrition for growth, development, and overall health.

A dress is a necessary part of a woman's wardrobe. It should be fit for the occasion and the woman at the time. This is the dress of a healthy mother. The dress is a symbol of health and beauty, and it is important to maintain a healthy body image.

A checkbook is a necessary part of a woman's pantry. It should be filled with nutrients and minerals. This is the pantry of a healthy mother. The pantry is a symbol of health and nutrition, and it is important to maintain a healthy lifestyle.

A copy of the book from which these are extracts, also a valuable little book, "The Care and Feeding of Infants," may be had free by addressing

DOLBER, GOODALE & CO.

Fig. 1. Mellin's advertisement, Babyhood (1883)

The 1938 advertisement attracts the reader with an eye-catching visual of a smiling baby and smiling parents. It graphically demonstrates the result of using Libby's Homogenized Baby Food. The copy in the lower half of the advertisement is informative, "special homogenization—which breaks food cells into tiny particles," but the information imparted in the text is less important than the emotional appeal. Of great significance is the dialogue in the visual which cites a physician and urges readers to "Ask your doctor." Healthful child rearing would not result from mother's, or grandmother's, experience, this advertisement suggests; nor

would women study science for themselves. Rather, mothers interested in the health of their families would probably follow the directions of their doctors.

The differences between these two advertisements reflect technological advances and philosophical developments in magazine advertising, it is true, and, most strikingly, changes in the idealization of motherhood. These advertisements document how the commonly accepted views of motherhood changed and how scientific motherhood was used to promote specific merchandise.

Throughout the nineteenth and into the twentieth century, certain core elements in the idealization of motherhood remained fairly constant. Central was the correspondence between motherhood and womanhood: it was through motherhood that women were to find their identity and life fulfillment. As one writer
nearly expressed it in 1886: “For motherhood is the crown and glory of a woman’s life. It comes sometimes as a thorny crown, but it is worth all it costs. The blessing of motherhood, which is like nothing else on earth, is placed in compensation over against all the pain and care which is often seen to be woman’s peculiar burden. And it compensates.” Though new options took some women outside the domestic sphere into the worlds of paid labor and the women’s club movement, the overwhelming majority of women became wives and mothers and popular imagery persisted in equating laudatory womanhood and the maternal role. “Women’s labors and success in the various fields and affairs of life, are calling daily for more and more attention,” noted one woman physician in her 1901 manual for women. But, she cautioned, “while we admire her in her new role, with her efforts toward success in society, literature, science, politics and the arts, we must not lose sight of her most divine and sublime mission in life—womanhood and motherhood.”

Yet, even with the persistence of this image, over the decades the size of the average American family shrank and women spent less years in child rearing. In 1880, the total fertility rate for white women was 4.24 children. The number decreased over the decades: by 1900 it was 3.56, and by 1930 the rate was 2.45, dropping to 2.19 in 1940.

In addition to declining family size, technological innovations and other social and cultural factors altered women’s lives. Devices such as carpet sweepers, vacuum cleaners, refrigerators, and washing machines slowly became available to growing numbers of households. Cookbooks became more “scientific,” more exacting, speaking of a tablespoon of an ingredient, not a walnut-sized piece. The emerging commercial food industry further modified American women’s cooking tasks, as the variety of canned foods first available in the mid-nineteenth century expanded greatly by the second decade of this century. Furthermore, modern and expanding networks of communication and transportation, including such developments as rural free delivery, mail-order merchandising, mass-circulation magazines, the telephone and railroads, facilitated the movement of goods and services and transformed the domestic experiences of women.

Regarded in a negative light, these changes could appear to devalue the importance of women’s work in the home and could encourage women to seek an identity outside the domestic sphere. Concurrently, though, the ideology of scientific motherhood served to elevate the nurture of children to the status of a profession.

The expectation that science should shape domestic work dates from at least as early as the 1840s with the publication of Catharine Beecher’s *Treatise on Domestic Economy*. Beecher gathered together in one volume the whole spectrum of domestic tasks, including household maintenance, child rearing, gardening, cooking, cleaning, and nursing, providing scientific rationale for her advice. She did not present herself as an expert in matters such as physiology and health but instead acknowledged the scientific sources she used and implied that any woman could learn from them. For Beecher and her followers, just as men studied and trained for their professions, so must women educate themselves for their life’s work, mothering. Women needed to “equip themselves for motherhood as thoughtfully, conscientiously, and zealously as any other scientist prepares himself for an exacting career,” opined one early home economist in 1895.

Moreover, as the prestige of science grew in American society, the application of scientific discoveries in the domestic sphere could enhance the status of women’s domestic labor. As one mother wrote in an 1899 issue of the popular women’s magazine *Ladies’ Home Journal*, “Ideal motherhood, you see, is the work not of instinct, but of enlightened knowledge conscientiously acquired and carefully digested. If maternity is an instinct, motherhood is a profession.” Women, she insisted, needed to “cultivate a new way of looking at their children”; they needed to adopt a male, “scientific” perspective. Scientific motherhood exalted science and devalued instinct and traditional knowledge. A 1915 anonymous poem from *Forecast: A Magazine of Home Efficiency* playfully captures this message:

**A Modern Lullaby**

Rock-a-bye, baby, up on the bough
You get your milk from a certified cow.
Before your eugenic young parents were wed
They had decided how you should be fed.
Hush-a-bye, baby, on the tree-top,
If grandmother trots you, you tell her to stop;
Shun the trot-horses that your grandmother rides—
It will work harm to your little sides.
Mamma’s scientific—she knows all the laws—
She kisses her darling through carbolized gauze.
Rock-a-bye, baby, don’t wriggle and squirm:
Nothing is near you that looks like a germ.

Though lighter in tone than other calls for educated motherhood, this poem is representative of the period.

Into the twentieth century, scientific motherhood more and more accentuated
the positive necessity of mothercraft education. Giving birth made a woman a mother in the physical, biological sense only; a good mother had to learn about mothering from authoritative sources. The growing belief that science should inform mothering practices could and did lead to the claim that women should receive professional training for motherhood. Declared one mother of six writing in 1919, "It now seems to me that it is about as rational for a woman to learn by experience with her own children to be a good mother, as it would be for a doctor to get his education merely by practicing on his patients. Motherhood offers no less opportunities for success than do the professions of law or medicine." Some commentators carried the analogy further, claiming that untrained mothers were dangerous to their children's health. Acknowledging the importance of "maternal instinct," which she described as "love, patience, and unselfishness," one mother writing in Good Housekeeping in 1911 claimed that "maternal instinct left alone succeeds in killing a large proportion of the babies born into this world." Soon, ill health, excessive crying, or any negative characteristic of an infant could be, and was, blamed on maternal ignorance. COUNSELLED THE EDITOR OF PARENTS' MAGAZINE IN 1935, "DOCTORS, TEACHERS, NUTRITIONISTS AND RESEARCH WORKERS ARE DAILY PROVING THAT NOT MOTHER LOVE ALONE BUT MOTHER LOVE IN COMBINATION WITH THE BEST THAT SCIENCE HAS TO OFFER IN ALL FIELDS OF CHILD CARE IS NEEDED."  

Not surprisingly, child-care journals and general women's magazines were among the leading proponents of scientific motherhood from the late nineteenth century onward. As the magazine Babyhood stated in 1893, "There is a science in bringing up children and this magazine is the voice of that science." Other journals articulated the ideology of scientific motherhood through articles and advice columns such as "Mother's Corner," edited by a trained nurse for the Ladies' Home Journal, and the "Health and Happiness Club," edited by a physician for Good Housekeeping, another popular women's magazine. In 1910 in a more targeted move, Dr. Emelyn Coolidge established the "Young Mother's Register" in the Ladies' Home Journal. Within one year over five hundred mothers registered; they sent monthly reports to Coolidge and questions that the doctor promised to answer personally. By 1912, Coolidge proudly announced, "The young mother is fast becoming educated, being no longer satisfied to follow the advice of well-meaning but inexperienced neighbors, but preferring to turn to a higher authority for help in solving nursery problems." In this case, and increasingly, that higher authority was the science or medical expert.  

In the twentieth century, another source for "scientific motherhood" was government pamphlets, most especially the federal government's pamphlet Infant Care. This most popular of all government publications was produced by the Children's Bureau. As a result of reformers' extensive efforts, the federal government had established the bureau in 1912. Originally designed as a fact-finding agency to report on the welfare of children, the reformers who staffed the agency sought to maximize their influence through educational initiatives; among the most important were their publications. Infant Care was first published in 1914. By 1940 over 12 million copies had been distributed and by the 1970s over 59 million. People could and did write in for the pamphlet, but it was also frequently sent unsolicited by congressional representatives to their constituents with newborns. The history of the production of Infant Care is a good example of the shifting definition of scientific motherhood in this century and the shifting focus of authority in motherhood education.  

The first edition of Infant Care was written by Mrs. Max West, a widowed mother of five and a graduate of the University of Minnesota, West had turned to writing to support her family. She fused her knowledge of the work of leading physicians with her own practical experience, a combination that reflected the Children's Bureau's belief that children's health encompassed more than medicine. Following the initial distribution of the pamphlet, the medical profession pressured Julia Lathrop, chief of the Children's Bureau, to involve medical practitioners more directly in the production of bureau publications dealing with the techniques of child care. They insisted that she appoint a Medical Advisory Committee to review all such publications. The committee included representatives of the American Pediatric Society, the Pediatric Section of the American Medical Association, and the American Child Hygiene Association. In a letter dated 9 October 1919, the committee claimed that Infant Care was "merely a compilation" and as such should not have an author's name attached. West, bowing to the pressure exerted on Lathrop by the committee, accepted the decision to delete her name. By 1921, she appears only in the letter of transmittal, not on the title page. Shortly thereafter she disappears from the publication; by the late 1920s, all the compilers of Infant Care were physicians. In the 1931 edition of Infant Care, readers learned that "the care of a baby is a great responsibility, but it can be carried successfully if the parents regularly seek the advice of a physician trained in the care of infants. . . . The doctor should be the mother's guide, and this bulletin is intended to help her carry out his orders intelligently." No longer were mothers envisioned as actively involved in making decisions about their child-rearing practices; they were now to follow the orders of the physician.
print under the auspices of Good Housekeeping. Many other physicians published baby care books with varying success. And the tradition continues today, with Dr. Spock's Baby and Child Care in its fifth edition. Also, physician-authored manuals face stiff competition from child-care books produced by psychologists and lay writers.

In addition to publications, women learned about scientific motherhood and received training in other, more immediate settings. Slowly in the early years of the twentieth century and then rapidly in the 1920s and 1930s, school systems all over the country instituted home economics or domestic science classes. Often these courses were mandatory for girls. Educators rationalized that "it is expected that every woman will have at some time in her life the care of babies and young children. It is not reasonable to expect that she should know how to care for them wisely without definite instruction and training in the skill and art of mother craft." Domestic science instruction was preparation for a girl's lifework.

Middle-class home economists promoted their subject as beneficial for the future of individual girls and for society in general. They viewed with alarm what they and many other contemporaries saw as the breakdown of American family life. All around they saw a society disrupted by increased urbanization, industrialization, and immigration. They believed they identified the remedy. Ellen Richards, founder of the Lake Placid Conferences, the first professional organization of home economists in the United States, confidently promoted home economics as "nothing less than an effort to save our social fabric from what seems inevitable disintegration." This social reform outlook continued to influence the calls for home economics education. Declared one writer in the Journal of Home Economics in 1919, "Much of what is unwise in the rearing of children is due to the indifference, the inertia, and the lack of insight that arise from unpreparedness for the responsibility. Each generation of graduates from the eighth grade and high school courses in home economics should increase the number of homes in which babies and children will have better chances for survival and health."

Contemporary curriculum reform movements also reflected this belief in the efficacy of education to alleviate social problems. In its 1910 report on the place of industries in public education, the National Education Association clearly articulated the role leading educators saw for girls in American society. They explained that courses for girls should "enable them, thru the right sort of homemaking training, to enter homes of their own, able to assume the most sacred duties with an intelligent preparation, and to perpetuate the type of home that will bring about the highest standard of health and morals."

Alternatively, mothercraft education was promoted through Little Mothers' classes, usually offered by city public health departments. These courses were first established in 1910 by Dr. S. Josephine Baker in New York City. Her interest in educating girls in mothercraft was spurred by the realization that many young children in the slums of New York were left for long periods of time in the care of only slightly older sisters. Baker had two goals in developing Little Mothers' Clubs. First, she wanted the girls to receive practical instruction in child care, which she believed would improve the health of their younger charges. Second, she intended that these young girls would, in turn, instruct their mothers and neighbors in scientific motherhood, making the girls, in Baker's words, "our most efficient missionaries." By 1912, some 20,000 girls attended weekly meetings of the city's Little Mothers' Leagues. Other states followed suit. For example, Wisconsin offered a series of ten one-hour lessons on infant hygiene for school-age girls, starting in the 1920s. If the student successfully completed the course, passed an oral or written examination, and demonstrated her expertise in bathing an infant and mixing a bottle formula, she received a diploma naming her a "Wisconsin's Little Mother."

The photographic records of the Rockefeller Archives document the extensive networks of homemakers' clubs established by the General Education Board in the years 1902 to 1964. Courses provided women and girls in elementary and secondary schools with training in child-care practices informed by contemporary scientific knowledge.

Manufacturers too, as seen in figures 1 and 2 above, recognized the power of the image of scientific motherhood and produced advertisements that stressed the importance of scientific advice. More and more through the first half of the twentieth century, the use of scientific and medical "experts," usually men, dispensing scientific advice, sold a variety of consumer products. While flattering the readers' perceptiveness ("Your own intelligence tells you"); one 1928 advertisement (figure 3) establishes the critical role of physicians in selecting an appropriate toilet tissue by describing the "three requirements doctors say toilet tissue must have." Furthermore, the advertisement insists, because of the medical endorsements, there is no doubt that "housewives should insist on these requirements in buying toilet tissue." Clearly, this and many other advertisements of the time seem to be saying that in order to purchase the appropriate bathroom tissue and any number of other products, women need direction from medical experts. Another example is the 1938 advertisement for a set of course material (figure 4). The publisher uses a combination of negative appeal (the disadvantages of not having purchased the advertised product) with the promise of a hopeful future (namely, the success of scientifically directed child care). Modern, up-to-date mothers, this advertisement seems to say, will replace traditional advice networks with scientific advice. The statement that "instead of blindly following instinct alone or laboriously duplicating the tedious methods of previous generations, you turn to specialists and
authority” implies that without them mothering would be a dismal failure. “Specialists and authority” replace “instinct” and the knowledge of “previous generations.” The appeal to science is strengthened by the grandmother extolling the virtues and benefits of modern motherhood. The copy underscores her advice: “Add science to love and be a ‘perfect mother.’”

The extent to which scientific motherhood permeated U.S. culture raises several crucial questions. In the face of all these manuals and pamphlets and classes and advertisements, how did women react to the ideology of scientific motherhood? How did they participate in its development and spread? How did they influence its shape and scope? Though these queries demand further study, some preliminary answers are clear at this time.

Evidently women came to accept the essence of the ideology; that successful and healthful child rearing should be informed by scientific expertise. It is also evident that women actively sought expert advice. Women acted on the basic tenets of scientific motherhood, namely, that while women maintained the primary responsibility for infant and child care, they were dependent on experts, scientific and medical, to tell them and to teach them how best to raise their children.
Ultimately, they believed that the most successful child rearing was done under scientifically informed medical supervision. This is not to say that all women everywhere and at all times slavishly followed the dictates of scientific and medical experts in raising their children. They could and did temper their faith in scientific expertise with greater or lesser doses of common sense and self-confidence in their own abilities. Indications that women accepted scientific motherhood and the balancing act are, on the whole, indirect and impressionistic.

Popular culture presents some hints about this balancing act. In the 1939 comedy film Bachelor Mother, Ginger Rogers is self-confident in her care of an infant; yet, as David Niven helpfully reads to her from a child-care manual written by a doctor with “twenty years’ experience,” she begins to doubt her ability. When Niven reads that Rogers should rub some warm food into the child’s navel, she is torn between her methods, which have satisfied the child, and this “expert advice.” She starts to lay the child down and undress him as if to follow the doctor’s instructions. Then rethinking the situation, she takes the book from Niven and discovers that in his reading several pages had stuck together, and the instructions he read had concerned a treatment for colic. This scene captures very clearly the confusion that many women felt; they appreciated scientifically based advice but were perplexed when the “expert” opinion contradicted their own proven abilities and common sense. Though an example from Hollywood, this film is one indication of the widespread recognition of the basic tenants of scientific motherhood in the United States.

The multitude of child-care books based on the ideology is another sign of its acceptance. These publications were extremely popular, running through many editions each. For example, Spock’s book first appeared in May 1946. Within three years, paperback annual sales reached one million copies. Despite stiff competition from a multitude of other child-care manuals, by 1952 Spock’s had sold over 30 million copies in 38 languages. While historians may debate to what extent Spock’s publication signified a major shift in the philosophy of child-care advice, in one very significant aspect at least he represents continuity with his predecessors. In the opening of his book, he counsels readers, “You know more than you think you do. . . . Bringing up your child won’t be a complicated job, if you take it easy, trust your own instincts, and follow the directions that your doctor gives you.” Some analysts of the 1940s and 1950s consider that the popularity of books such as Spock’s is to some extent class-related; however, additional research is needed in this area. It is clear that the audience for much of this child-care literature was the literate middle-class; yet, Holt’s book was initially conceived as a catechism for working-class nannies employed by upper-class mothers in New York City and was quickly revised for the use of the employers, rather than the employees.

The many letters received over the years by the Children’s Bureau in praise of its pamphlet Infant Care also demonstrate the complex interaction of class and scientific motherhood. This correspondence came from rural and urban mothers and cut across class and, to some extent, racial and ethnic groups. Women’s acclaim for the bureau’s publications reached beyond the internal bureau files. One mother, writing in Cosmopolitan in 1940, declared, “My constant companion was that Bible of the 1940 young mother, the infant Care pamphlet printed by the United States Government. The title was just too prosaic for the singing hearts of the mothers, so someone rechristened it The Good Book, and by that name it is generally known.” Other letters and articles in women’s magazines and child-care journals talk about raising their children “by the book” and offered other readers to use child-care manuals. In late nineteenth-century women’s magazines, readers frequently advised each other through letters columns. This sisterly support continued into the twentieth century, but the content of the advice slowly shifted. In the earlier period, women were more likely to use their own experiences to instruct others. Gradually, letters relied less on women’s practical experience and began to reflect more what women were reading and the advice they received from physicians. Consequently, by the second quarter of this century, mothers wrote about “what my doctor told me to do” and directed others to medical practitioners.

While letter writers and authors of articles in women’s magazines were primarily middle-class, the students in public school home economics classes spanned a wider range. Since home economics educators, as well as public health officials who established Little Mother’s Clubs, were very pointed about the role of their courses in the uplifting and “Americanizing” of working-class and immigrant girls, the role of these educational efforts in the spread and popularity of scientific motherhood requires a complex, nuanced study of the education of girls in the period.

In the first four decades of this century, there were a few surveys that attempted to ascertain actual child-rearing practices among various class and ethnic groups. These investigations report that women read advice printed in sources such as Holt and Infant Care and that they followed what they read. The Lynds’ classic study of American culture, Middletown, disclosed the importance of published sources, classes, and health practitioners to mothers raising children in Muncie, Indiana, though the specific forms popular with mothers varied among classes. My own interviews with women document their growing appreciation and reliance on scientific and medical expertise. Mothers who attended child-care classes at the university saved their books and notes and later read them again while raising their children. One of my informants fondly remembered a University of Wisconsin course popularly called “The Bride’s Course,” which included instruction in
prenatal and postnatal care. Years later she continued to refer to her class notes in raising her children.

The reasons for mothers' increasing adherence to scientific motherhood from the late nineteenth century to our own time require analysis beyond the scope of this essay. However, preliminary research suggests several factors that begin to explain why women turned more and more frequently to medical expertise and experts. Throughout the period, the prestige of science and medicine grew in American culture. Moreover, declining family size along with a fear of continuing high infant mortality and morbidity rates made each child that much more precious; one sought out the best, most up-to-date information for the sake of one's children. Then, too, economic considerations encouraged the spread of scientific motherhood in both the commercial and professional worlds. Manufacturers found that promoting "science" helped to sell products; since scientific motherhood remained a popular theme for advertisers, they must have believed it was a successful tool for advancing a variety of products. Doctors found that pediatrics provided a lucrative portal to an expanding practice, as the specialty of pediatrics grew and as more general practitioners incorporated pediatrics into their practices.

A most critical and as yet not fully examined component in the growing acceptance of scientific motherhood is gender. True, the experts were most frequently depicted as male, usually physicians; science, medicine, and professionalism in general were described in male terms. Yet, scientific motherhood is more than an expression of male physicians intervening in the lives of female patients. Whether viewed as passive or as active recipients of medical knowledge, mothers were actively involved in caring for their children in their homes, negotiating between the instructions of medical practitioners and the exigencies and beliefs of their own lives. Moreover, though medicine and medical science were gendered male, the insistence on the importance of medical experts and experts came from a multitude of sources, including, very significantly, the emerging field of home economics. It is important to remember here that home economics was the only science gendered female—that is, a niche within which women could pursue science. Therefore, gender must be analyzed not only in terms of a male medical system. An important question that is beginning to receive much more historical attention addresses the relationship between home economics and the ideology of scientific motherhood in patriarchal American culture.

The development of scientific motherhood was not limited to the United States. It appeared in various forms in many parts of the globe, including Europe, other parts of North America, and the Antipodes. For example, Mein Smith's close study of one town in Australia attempts to document some mothering practices in a similar time of transition. Her evidence implies that though there is no simplistic link between prescription and practice, changes in mothers' routines and beliefs over time do reflect changes in prescribed routines and beliefs, many of which are similar to the elements in the U.S. form of scientific motherhood. The concern for motherhood education is also apparent in Klaas's study of France and the United States. She elucidates structural, political, and cultural differences that affect the development and implementation of maternal and child health public policy, in many regards the political expression of scientific motherhood. Such work points to the importance of expanding beyond national borders. Scientific motherhood was a broad-based, socially sanctioned ideology prescribing women's relationship to medical expertise and experts. Subsequent research will undoubtedly disclose how local political, social, and cultural factors of different countries, counties, cities, and even neighborhoods shaped the ideology in unique ways and provided women with distinctive avenues to accommodate and resist the direction of medical experts.

Under the tenets of scientific motherhood, woman's place remained in the home, where mothers were accorded full responsibility for all things domestic, including, most significantly, the care and raising of children. At the same time, and with increasing intensity, scientific motherhood denigrated women's skills and knowledge by insisting that mothers needed the assistance of medical and scientific authorities in order to carry out their maternal duties successfully. The development of scientific motherhood did not represent a sharp break with past practices, but rather a gradual realignment of power relationships within the domestic setting. The nineteenth century promoted the image of woman as "queen of the nursery," responsible for and in control of her domain. Through the late nineteenth and early twentieth centuries, increasing numbers of advisers insisted on the importance of scientific expertise to the successful accomplishment of her tasks. By the second third of this century, the form of the expertise had shifted from counsel to direction. The image of the scientific mother changed from the queen of the nursery to the servant of science. By the twentieth century, scientific motherhood endowed the image of women with positive and negative attributes: responsibility implies independence of action and strength—that mothers are important in child care; yet the need for assistance suggests dependence and weakness—that women lack intelligence.

Scientific motherhood was not and is not a disembodied, reified theoretical construct. It was and is defined by science, culture, and society. It reinforced and
reinforces, it reproduced and reproduces patriarchal sex roles: women in the domestic sphere, men outside; women instructed by scientific and medical authorities—males. Scientific motherhood was and is disseminated through cultural forms. The study of the development and spread of scientific motherhood can help us to understand the interrelationships between science, medicine, and social roles.

NOTES

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1. This study is part of a comprehensive, on-going investigation of "scientific motherhood," "Science + Love": A History of Scientific Motherhood, 1850–1990.


3. In the United States, only a small minority of married women entered the paid labor force. In 1890, approximately 4 percent of all married women were employed outside the home. By 1900 this figure had grown to only 5 percent and by 1940 had reached barely 15 percent. S. H. Van Horn, Women, Work and Fertility, 1870–1986 (New York, 1986). According to statistics analyzed by Weiner, approximately 770,000 married women were in the labor force in 1910. L. Y. Weiner, From Working Girl to Working Mother: The Female Labor Force in the United States, 1820–1980 (Chapel Hill, 1983). In contrast, many women, especially middle-class women, both white and African American, joined the expanding club movement. Organizations ranged from literary and self-help groups to those involved in social reform. In the 1890s they combined to form a national umbrella organization, the General Federation of Women's Clubs, which by 1910 claimed a membership of over one million. For more on women's organizations, see A. F. Scott, Natural Allies: Women's Associations in American History (Urbana, 1993); T. Skocpol, Protecting Soldiers and Mothers: The Political Origins of Social Policy in the United States (Cambridge, Mass., 1992). See pp. 328–33.


6. For more on the impact of these changes on women's lives, see E. Arnold, ed., Voices of American Housewives (Bloomington, Ind., 1989); E. T. May, Homeward Bound: American Families in the Cold War Era (New York, 1988). For more on the history of domestic science, see R. S. Cowan, More Work for Mother: The Ironies of Household Technology from the Open Hearth to the Microwave (New York, 1983); Shapiro, Perfection Salad: Women and Cooking at the Turn of the Century (New York, 1986).


14. Babyhood 9, no. 103 (1893): xii. By 1928 an article in Parents' Magazine pointed to thousands of research scientists, doctors, dietitians, and nurses who were trying to determine how to give children the best possible start in life. Yet, their endeavors would mean nothing "unless the mother picks up the work there and carries it wisely." A. Pierce, "What to Feed the Baby and Why," Parents' Magazine 3, no. 5 (1928): 6–17, 60, 61.

15. The nurse was Elizabeth Robinson Scovil, the physician, Josephine Hemenway Kenyon. For more on their stories and the booklets they provided mothers, see R. D. Apple, Mothers and Medicine: A Social History of Infant Feeding, 1870–1930 (Madison, 1987), esp. chaps. 6 and 7.


25. B. Benzzel, C. Roberts-Gersch, and J. Wittner, "Becoming Social: School Girls and Their Culture between the Two World Wars," Journal of Early Adolescence 3 (1982): 480. This developed against a background of a changing school population. In 1900, only 39 percent of all children between 5 and 17 attended schools; by 1928, this proportion had grown to 80 percent. Several interacting factors induced the sharp increase in school attendance. Before the turn of the century, secondary education was primarily college oriented. In the twentieth century, the occupational structure of the U.S. economy created increasing numbers of jobs that demanded high school education, for not graduation, and evolving elementary and high schools curricula were slowly, though unevenly, incorporating vocational education. The high school was no longer an elite institution for the college-bound; it was a popular institution with a pragmatic outlook: to prepare women and men for their roles in society. Rury, "Vocationalism," p. 252.


30. Bachelor Mother proved to be a very popular film. Remade in 1936 as Bundle of Joy, starring Debbie Reynolds and Eddie Fisher, most of the dialogue remained, but a few songs were added for Fisher. Other films also insisted that mothers needed education. See, for example, Rock-A- Bye Baby, a 1938 film starring Jerry Lewis. Faced with needing to prove that he is a "real mother," Lewis is able to attend the University Child Care Clinic of Chicago, an institution dedicated to educating mothers. He is the only male student.


32. B. Spock, The Common Sense Book of Baby and Child Care (New York, 1945; 1946), p. 3. This advice can be found in all subsequent editions as well.

33. For an indication of the range of correspondents in the Children's Bureau files, see Ladd-Taylor, Raising a Baby the Government Way.

34. J.B., "My $100 Baby," Cosmopolitan 89, no. 6 (1940): 54.

35. For more on these writings, see Apple, Mothers and Medicine, esp. pp. 135–66.


