

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 142, No. 12

CHICAGO, ILLINOIS
COPYRIGHT, 1950, BY AMERICAN MEDICAL ASSOCIATION

MARCH 25, 1950

BREAST FEEDING COMES OF AGE

FRANK HOWARD RICHARDSON, M.D.
Black Mountain and Asheville, N. C.

In this paper I give a brief history of breast feeding and discuss some of its disputed features, in the hope of "rescuing breast feeding from its present somewhat neglected state"¹ by showing that the literature establishes it as a sound scientific procedure which has at last come of age.

The earlier contributions to the literature on breast feeding were largely hortatory, scolding physicians and mothers alike for their readiness to wean the infants and praising breast feeding.² This almost religious fervor is understandable to the physician who remembers when dirty milk was the rule rather than the exception and when breast-fed babies in New York tenements had better chances for life and health than their bottle-fed contemporaries on Fifth Avenue.^{2b} Not until 1930 was a writer willing to state that he considered artificial feeding as good as natural.³

In spite of this preaching, until 1919 breast feeding was looked on by the average physician as a providential occurrence. If the mother could not nurse her infant so-called "scientific" artificial feeding was begun, and the sooner the better. Like the well known comment on the weather, everybody talked about breast feeding but no one did anything about it. In 1919, however, Sedgwick started a movement that brought the possibility as well as the advantages of breast feeding to the attention of the mother of every baby born in Minneapolis from January through May of that year.⁴ Featuring manual expression, he taught medical students, physicians and mothers that almost every mother can nurse her baby, provided she and her physician wish it and learn the technic. But there were many who claimed that this was possible only with sturdy women not far removed from the farm and that sophisticated Eastern

city women would never be able to give similar high percentages of breast feeding.

A convincing reply was furnished to these objectors when a similar demonstration was put on in Nassau County, a suburban section just outside the city of New York, by the state department of health in 1925 and 1926,⁵ with results that were almost identical. Even better figures were obtained in demonstrations that followed in smaller cities throughout the state.⁶

These various demonstrations proved convincingly that "almost any mother who wanted to, and whose doctor understood a simple technic, could breast feed her baby as long as she and her doctor desired,"⁷ with a distinct reduction of mortality and morbidity percentages,^{2b} enhanced immunity to gastrointestinal and respiratory diseases,⁸ and the emotional benefits claimed by the psychologists for mother and baby alike.⁹

Whereas all that physicians knew about artificial feeding had followed the studies of Biedert in 1869,¹⁰ Fritz Talbot's work on human milk in 1919¹¹ was another serious study. This showed the fallacy of condemning mother's milk on the strength of a single specimen tested with Holt's cream gage and lactometer.^{2b} And in 1923 Turner, a pediatrician who had been a farm boy, called attention to the similarity of milk formation in two mammalian mothers, the human and the bovine, and drew interesting conclusions on increasing milk production in mothers by methods similar to those in use in the dairy.¹²

Various opinions whether colostrum is laxative, nutritious and germicidal in the human being as it is in the calf¹³ are held by various authors.¹⁴ Although earlier

From the Children's Clinic, Black Mountain, N. C.
Read before the Section on Pediatrics at the Ninety-Eighth Annual Session of the American Medical Association, Atlantic City, N. J., June 8, 1949.

1. Report of Committee on Mother's Milk Bureaus, *Pediatrics* **1**: 109 (Jan.) 1948.

2. (a) Walker, J.: Is Nursing by the Mother to Be Encouraged? *Arch. Pediat.* **2**: 1 (Jan.) 1885, in *Arch. Pediat.* **62**: 78 (Feb.) 1945. (b) Holt, L. E.: Diseases of Infancy and Childhood, ed. 4, New York, D. Appleton-Century Company, Inc., 1908, and personal communication to author. (c) Abt, I. A.: Facts and Fallacies About Breast Feeding, *St. Paul M. J.* (April) 1915. (d) Brennemann, J.: Practice of Pediatrics, Hagerstown, Md., W. F. Prior Company, Inc., 1945, chap. 25, vol. 1. (e) Infant Feeding: Maternal and Artificial, Butler, Ind., H. R. Farnham, 1915, p. 15. (f) Grulee, C. G.: Breast Feeding, *Proc. Interstate Postgrad. M. A. North America*, 1943, p. 135. (g) Grulee, C. G., and Caldwell, F. C.: Influence of Menstruation on Breast Feeding, *Am. J. Dis. Child.* **9**: 374 (May) 1915. (h) Guthrie, S. K.: Breast Feeding, *Clin. J.* **65**: 205 (May) 1936.

3. Glazier, M. M.: Comparing the Breast and Bottle Fed Infants, *New England J. Med.* **203**: 626 (Sept. 25) 1930.

4. Sedgwick, J. P.: Preliminary Report of Breast Feeding in Minneapolis, *Am. J. Dis. Child.* **21**: 455 (May) 1921. Sedgwick, J. P., and Fleischner, E. C.: Breast Feeding in the Reduction of Infant Mortality, *Am. J. Pub. Health* **11**: 153 (Nov.) 1921.

5. (a) Nurses' Manual for Breast Feeding in Nassau County, New York, Division of Maternal Information and Child Hygiene of New York State Department of Health, Albany, N. Y., 1924. Richardson, F. H.: Progress of Breast Feeding in New York State, *J. A. M. A.* **89**: 1487 (Oct. 29) 1927; Breast Feeding Demonstrations and the Physician, *ibid.* **87**: 1977 (Dec. 11) 1926; Universalizing Breast Feeding in a Community, *ibid.* **85**: 668 (Aug. 9) 1925; (b) Annual Report of the Division of Maternal Information and Child Hygiene, New York State Department of Health 1925-1926, Albany, New York, State Printers, 1927, pp. 66-71 and p. 76.

6. Wakeman, B. R.: Daughter Demonstration in Hornell, in personal communication to the author.

7. Richardson, F. H.: Simplifying Motherhood (Footnote 5b) New York, G. P. Putnam's Sons, 1925.

8. (a) Grulee, C. G.: A Baby's Best Chance, *Woman's H. C.* **63**: 20 (Oct.) 1936; Study of Seasonal Morbidity and Mortality of 20,000 Breast and Artificially Fed Infants, *J. Pediat.* **6**: 6 (June) 1935; Breast and Artificial Feeding, *J. A. M. A.* **103**: 735 (Sept. 8) 1934; Breast and Artificially Fed Infants, *ibid.* **104**: 1986 (June 1) 1935; (b) Influence of Breast and Artificial Feeding on Infantile Eczema, *J. Pediat.* **9**: 223 (Aug.) 1926.

9. Childers, A. T., and Hamil, B. M.: Emotional Problems in Children as Related to the Duration of Breast Feeding, *Am. J. Orthopsychiat.* **2**: 134, 1932. Stone, S., and Bakwin, H.: Breast Feeding, *J. Pediat.* **33**: 660 (Nov.) 1948.

10. Strong, R. A.: The Renaissance of Breast Feeding, *Internat. M. Digest* **5**: 912 (Nov.) 1924; The Decline of Breast Feeding, *ibid.* **34**: 123, 1939.

11. Talbot, F.: The Analysis of Human Milk, *J. A. M. A.* **73**: 662 (Aug. 30) 1919.

12. Turner, M. L.: Some Observations from Nature, *Tr. Sect. Dis. Child.* **A. M. A.**, 1923, p. 63.

13. Smith, T., and Little, R. B.: The Significance of Colostrum to the New-Born Calf, *J. Exper. Med.* **36**: 181, 1922.

14. (a) Marriott, W. McK.: Infant Nutrition, St. Louis, C. V. Mosby Company, 1930. (b) Smith, C. A.: The Physiology of the Newborn Infant, Springfield, Ill., Charles C Thomas, Publisher, 1945. Abt.^{2c} Brennemann.^{2d}

studies were limited to estimation of percentages of protein, carbohydrate and fat, interest later widened to include mineral content as well as vitamin potency.¹⁵

A careful study of human milk flow by Icie Macy and others to find out whether nervous, chemical or glandular agents operate to start the flow of milk led to the following conclusions: all are helpful to the physician who is trying to increase milk production:

Complete stripping is essential to maximum production.

Heavy work influences the amount and kind of milk unfavorably.

Nervous factors depress, and severe shock may completely suppress, the flow of milk.

Highstrung women are not good producers.

Volume varies significantly at different times.

Quantity is responsive to demand; it is doubled or even trebled by pumping.

It is impossible to distinguish between the rate of milk formation and the outpouring of previously formed constituents of milk.

Production increases till the sixth week or later, then the high level is continued for many weeks.¹⁶

Present day trends in infant feeding were well summarized by Milton Senn.¹⁷

Knowledge of the structure of the lactating breast is helpful in understanding its function¹⁸ and the influence and effect of suckling on the development of the infant's mouth.¹⁹ One study of 900 cases showed that 87 per cent of mothers attempting to nurse their infants will have an adequate supply on the fifth postpartum day for part or full time nursing and about 70 per cent will achieve full time nursing, varying with their age and parity and whether the baby is nursed from both or alternate breasts.²⁰

Another study noted how suckling rhythm changes from regular, steady, uninterrupted cadence when breasts are full to irregular spurts later.²¹ Others described the mother's subjective symptoms, as of "the milk coming in," prickling, tension, tickling, itching⁷ and what English observers call "the draught."²² The effect of fatigue and of insufficient rest and sleep in decreasing production have frequently been mentioned.²³

Aldrich noted four reflexes concerned with the actual getting of food—rooting, sucking, swallowing and satiety. He described the way that the nursing turns his head toward the breast when he feels it against his cheek or smells the milk.²⁴ Other observers have confirmed this behavior.²⁵

15. Macy, I. G., and others: Human Milk Studies, *Am. J. Dis. Child.* **70**: 135 (Sept.) 1945. Knott, E. M., and others: Is Breast Milk Adequate in Meeting Vitamin Requirements of Children? *J. Pediat.* **13**: 49 (Jan.) 1943.

16. Macy, I., and others: Human Milk Flow, *Am. J. Dis. Child.* **39**: 1186 (June) 1930.

17. Senn, M. F. E.: Trends in Infant Feeding, *Wisconsin M. J.* **47**: 195 (Feb.) 1948.

18. (a) Witkin, M.: Importance of Preliminary Milk Expression and Bilateral Breast Feeding, *Arch. Pediat.* **57**: 477 (Aug.) 1940; (b) Newer Concepts in Breast Feeding, *Practitioner* **152**: 384 (June) 1944.

19. (a) Robin, P.: Physiology of Sucking at the Breast, *Bull. Soc. pédiat. de Paris* **27**: 54 (Jan.) 1929. (b) Des Fosses, P.: Nursing at the Breast, *Presse med.* **45**: 601 (April 17) 1937.

20. Stewart, H. L., and Pratt, J. P.: Influence of Suckling Stimulus on Lactation, *West. J. Surg.* **49**: 98 (Feb.) 1941.

21. Hofmann, E., and Peiper, A.: Roentgenography of the Process of Suckling, *Klin. Wchnschr.* **14**: 1723 (Nov. 30) 1935.

22. Naish, F. C.: Some Problems of Breast Feeding, *Practitioner* **152**: 384 (June) 1944.

23. Richardson, F. H.: Critical Periods in Breast Feeding, *Hygeia*, **20**: 224 (March) 1942; *The Nursing Mother: A Study in Lactation*, New York State J. Med. **22**: 161 (April) 1922.

24. Aldrich, C. A.: Ancient Processes in a Scientific Age: Feeding Aspects, *Am. J. Dis. Child.* **64**: 714 (Oct.) 1942; *Advisability of Breast Feeding*, *J. A. M. A.* **135**: 915 (Dec. 6) 1947.

25. (a) Wyckoff, C. W.: Advances in Infant Feeding, *Clinics* **5**: 589 (Oct.) 1946. (b) Cathie, I. A. B.: Breast Feeding in Erythroblastosis Foetalis, *Brit. M. J.* **2**: 650 (Oct. 25) 1947. Bowley, C. C., and Dunsford, I.: Erythroblastosis and Breast Feeding, *ibid.* **2**: 1007 (Dec. 20) 1947. (c) Norval, M. A.: Suckling Response of Newly Born Babies at Breast, *Am. J. Dis. Child.* **71**: 41 (Jan.) 1946. Blanton, M. G.: Behavior of the Human Infant During First Thirty Days of Life, *Psychol. Rev.* **24**: 456, 1917. Naish.²²

THE TECHNIC OF BREAST FEEDING

The foregoing survey of the voluminous literature on breast feeding and the structure, function and hygiene of the lactating breast of the nursing mother show a healthy difference of opinion on many points. Further study of the literature reveals sharply differing opinions on almost every one of the cardinal points concerning the actual technic of breast feeding. Although I shall make an honest attempt to present both sides in the argument concerning each of these cardinal points, I shall indicate plainly my own preference in each instance and justify my own technic. I believe that every man who wishes to make breast feeding a useful tool should similarly evolve a method of his own. Not until this becomes fairly common practice can it honestly be claimed that breast feeding has really come of age.

Manual Expression.—The first of these cardinal points in breast feeding is manual expression, which in the human being is analogous to milking, with the forefinger and thumb employed instead of the whole hand of the milker. Simple as this procedure is, and most valuable for reasons to be discussed, manual expression is seldom practiced, to judge by the keen interest manifested whenever it is demonstrated before a group of physicians, and their evident surprise when they see jets of milk spurting 6 feet (183 cm.) or more.

The technic of manual expression has been explained by various writers in many terms, some of which make it seem difficult and complicated.²⁶ It is shown to be simple by the following description:

The proper way to empty a breast is to "milk" it. . . . Grasp the breast just back of the areola between the thumb and the first finger of the opposite hand. Close the thumb and finger on the (portion of the) breast tissue (lying between), drawing them forward with a slight milking motion. . . . At first the milk may come in drops; but after a few manipulations a spurting stream may and should be obtained. This has a tremendous psychologic effect on the mother and her relatives.²⁷

The technic can be mastered by any physician and taught to any mother in a matter of minutes.

(a) Manual expression is useful for making sure of the complete emptying, or "stripping," of the breast that most authorities agree is essential to continued optimum production. (b) It is also valuable as a means of determining whether and when the breast has been completely emptied, so as to save the baby from useless effort and the mother's nipples from needless and painful trauma. (c) Two physicians stated that they instruct expectant mothers to empty their breasts of colostrum by this method at frequent intervals three months ante partum, believing that this promotes breast feeding.²⁸ (d) Manual expression has a tremendous psychologic effect on mothers who doubt their ability to nurse.

The old-fashioned breast pump is still advocated by some writers, though there is general disapproval of its use. The easiest form of mechanical expression is by means of the Abt electric breast pump.^{26d} Water-power breast pumps, depending on a water suction apparatus like that used for cleaning pipets in the

26. (a) Moore, C. U.: *Nutrition of Mother and Child*, Philadelphia, J. B. Lippincott Company, 1923, p. 96. (b) Waller, H.: Early Failure of Breast Feeding, *Arch. Dis. Child.* **21**: 1 (March) 1946. (c) Davis, H.: Human Milk Studies, XXI: Simple Technic for Manual Expression of Mother's Milk, *Am. J. Dis. Child.* **70**: 148 (Sept.) 1945. (d) Tarr, E. M.: Development and Reestablishment of Breast Milk by Use of Dr. Abt's Breast Pump, *California & West. Med.* **23**: 728 (June) 1925. (e) Spock, B.: *Baby and Child Care*, ed. 1, New York, Pocket Books, Inc., 1946, p. 47. (f) Marriott.^{14a}

27. Richardson, F. H.: Breast Feeding, *New York State J. Med.* **25**: 263 (April 27) 1925.

28. Witkin.¹⁸ Waller.^{20b}

laboratory, may be improvised and are satisfactory.²⁹ Hot applications or massage are as ridiculous and ineffective as they would be if applied to a cow's udder.¹²

Complementary Feeding.—Now considered an almost indispensable feature of successful breast feeding, complementary feeding greatly lessens the worry and mental strain of every mother when she fears that her supply of breast milk is insufficient for the infant and that her baby will starve if she does not have some help in nourishing him.

Although some authors still make the distinction between complete breast feeding and so-called "mixed feeding," most of the enthusiastic proponents of breast feeding would feel badly handicapped in caring for mother and child if they could not depend in time of trouble on complementary feeding.³⁰ ("Supplementary feeding," alternating breast and bottle at successive feedings, is generally discredited, because such infrequent stimulation of the breasts would mean speedy weaning of the infant for most mothers.)

Length of Time at the Breast.—Perhaps one of the most vigorously contested points in the whole technic of breast feeding is the length of time the infant should remain at the breast. It is so closely related to the possibility of overfeeding that the two may be considered together.

Overfeeding.—The older writers made much of overfeeding as a common cause of trouble. One modern writer, Charles Hendee Smith, made an equally emphatic statement:

"The baby gets about 75 per cent of his nursing in the first two to four minutes. Six to eight minutes is usually adequate. If the supply is overabundant, three to five minutes. One of my patients got all he needed in forty seconds!"³¹ This writer stated his belief that the overfed baby gains too much, has too many loose green or yellow stools with curds, cries after feeding, has tense skin and contracts eczema.³² Another allowed only seven minutes.³³ Still another permits feeding for fifteen minutes, believing that after that time the child swallows air, which causes colic, crying and sleeplessness. "Their gums become painful, raw, inflamed and angry looking."¹⁸ (I have still to see such results of overlong feeding!³⁴)

One author stated that the time at the breast should vary with the baby's nursing vigor and degree of wakefulness.³⁴ My own position is strongly against any arbitrary time limitations, which I believe to be the cause of many unnecessary weanings, especially the time-honored but evil hospital limit of twenty minutes.³⁴ I have never seen anyone with patience and perseverance enough, to overfeed a baby.

Amount of Breast Milk Necessary.—A baby needs to drink an amount of milk that equals one seventh to one sixth of his body weight per day.³⁵ Twenty-five calories and 1½ to 2 ounces (44 to 59 cc.) of fluid per pound (0.5 Kg.) of body weight are needed for the

first week, while 45 calories and 2 to 2½ ounces (59 to 74 cc.) of fluid per pound are necessary throughout the first year.³⁶

Weighing Before and After Feeding.—It would seem logical to weigh the infant before and after feeding in order to determine how much breast milk he is getting if it were necessary to know this, as some authorities believe that it is. Smith and Merritt have even done what they call "fractional weighings," by which they mean weighing an infant every two minutes throughout an entire feeding. They have thus accumulated valuable data on the rate of secretion of breast milk.³⁷

Although many authorities place much dependence on this method of determining the amount of food taken by the infant, others believe that this may be misleading unless the intake is measured for an entire twenty-four hours. Brennemann advised that weighing before and after feeding may be used, but he counsels that it "should be discontinued after it is once established that the baby is getting enough." He adds that "too much weighing of a thriving baby is a meddling, unscientific procedure" and that "mothers have emotions . . . that have a direct influence upon the amount of milk secreted when the scale records a smaller amount of milk secreted."³⁸ Another author devised a mathematical formula as a substitute for before and after weighing.³⁸

I agree with Brennemann to such an extent that I am strongly against relying on such an artificial and unreliable method of determining whether and when a baby has had enough. I rely on the baby himself to indicate to me and his mother when he has had enough.

One or Both Breasts at a Nursing.—Although many hospitals and a great many physicians who are not especially successful with breast feeding favor allowing but one breast at a feeding, experimental evidence is greatly in favor of two-breast feedings.³⁹ Another observer has noted that "When one (breast) is being stimulated, the other is also, and if not emptied there will be some absorption, and usually the milk diminishes. The dairyman would not think of milking one half of the cow's udder at one time and half at another."¹²

It is my own firm conviction that the standardized hospital limitation to one breast at a nursing, and that other equally orthodox but equally unnatural limitation to twenty minutes at a nursing, are responsible for a vast number of entirely unnecessary weanings.

Posture During Nursing.—Although many mothers nurse their infants while lying down, most writers advocate the 45 degree angle naturally assumed by a baby in his mother's arms, with an occasional shifting to her shoulder for "burping." Smith and LeWald's roentgenologic studies showed an immense air bubble in a baby nursing in the horizontal position, which disappeared immediately when he was held upright. The crying and evident discomfort and pain disappeared at the same time. They concluded: "The erect posture favors eructation of (swallowed) air; the horizontal posture prevents (such eructation)."⁴⁰

29. Caldwell, F. C.: An Effective Breast Pump, *Am. J. Dis. Child.* **9**: 381 (May) 1915. Marriott.^{14a}

30. Dwyer, H. L., and Neff, F. C.: Complementary Feeding in the Newborn Infant, *J. A. M. A.* **99**: 463 (Aug. 6) 1932.

31. Smith, C. H.: Diet of Young Infants, *New York State J. Med.* **41**: 2395 (Dec. 15) 1941.

32. Richardson, E. H.: Diet of the Infant, *Maine M. J.* **28**: 89 (May) 1937.

33. Barber, W. W.: Newer Aspects of Infant Feeding, *Rocky Mountain M. J.* **35**: 537 (July) 1938.

34. Richardson, F. H.: Lactancia para Toda criatura, read before the Fifth Pan American Congress of Children, Havana, December 1927.

35. Taylor, R.: Care of the New Born Infant, *Journal-Lancet* **52**: 661 (Nov. 1) 1932. Brennemann.^{2d}

36. Tallerman, K. H.: Common Difficulties in Breast Fed Infants, *Practitioner* **154**: 343 (June) 1945.

37. Smith, C. H., and Merritt, K. K.: Rate of Secretion of Breast Milk, *Am. J. Dis. Child.* **24**: 413 (Nov.) 1922.

38. Antonov, A. A.: A Formula for Determining the Amount of Maternal Milk Which the Nursing Is Lacking, *Arch. de méd. d. enf.* **39**: 562 (Aug.) 1936.

39. Witkin.¹⁸ Stewart and Pratt.²⁰

40. Smith, C. H., and LeWald, L. T.: Influence of Posture on Digestion of Infants, *Am. J. Dis. Child.* **9**: 261 (April) 1915.

Others have advocated keeping the infant as upright as possible during nursing³⁶ (so-called "orthostatic sucking,"^{19a} as in savages, ancient sculpture and among all other mammals.^{19b}).

Gas.—All the older textbooks, and many a physician and mother today, take for granted that indigestion in babies is commonly caused by fermentation and the "gas" that results. Although it is difficult to conceive that fermentation could create enough gas to cause the distress that so many infants manifest shortly after eating, this idea persists. Smith and LeWald, however, definitely disproved this by roentgenologic evidence, and Smith stated: "Swallowed air accounts for gas in the large majority of cases. Air is constantly present in the larynx; and some is forced down with the food and with saliva or nasal or bronchial mucus between feedings."⁴⁰

McQueen Salley offered an ingenious explanation for this immediate bubble that could not come from fermentation. He said flatly: "I do not believe the nursing baby ever swallowed air. I do know that the action of dilute hydrochloric acid on certain liquids does produce gas (immediately), and that is what happens with the baby."⁴¹ Farmers who have treated the colic of so-called "cribbing" or "air-swallowing" horses by massaging their bellies with a broomstick may take issue with what Dr. Salley says about babies!

Colic.—Is colic a clinical entity? Or is the "six weeks colic" or the "three months colic" insisted on by the old ladies merely a myth? Many of the older writers and some of the new ones have insisted on its existence, some of them citing "enterospasm"^{2d} and "hypertonic" infants.⁴² Rosamund⁴³ has insisted that "hunger and colic are synonymous." My own experience convinces me that so-called "colic pains" are usually due to hunger or to overdistention with swallowed air. This does not take into consideration the colicky pains of intussusception, pyloric stenosis, pylorospasm, appendicitis or peritonitis, which have other accompanying symptoms confirming the diagnosis. If eructation or the passage of a stool, followed by the chance to take more food, does not make the "colic" disappear, then these more serious organic causes should be considered.

Prelacteal Feeding.—Prelacteal feeding is an attempt to circumvent nature's plan of having the baby lose weight (sometimes as much as ½ pound, 226 Gm., or more) during the first few days of life by offering him a sugar solution or a substitute formula until lactation is fully established. Brennemann asked whether physicians were "to accept . . . an initial three-day period of semistarvation with a 10 per cent loss in weight or to proceed at once to feed the newborn infant." He stated that he gave prelacteal feeding as a routine.^{2d} But he said elsewhere: "No other food should be given at this time except water."^{2e}

While many physicians see no objection to prelacteal feeding, far more are strongly opposed to it.⁴⁴ Grulee, finding that only 48 per cent of the babies at one hospital were still breast fed at the end of the lying-in period, ordered that nothing but water be given them in addition to breast milk. "At the end of six or eight months," he stated, "these figures were changed to

approximately 90 per cent."^{2f} In my practice I forbid everything but water until lactation begins.

Feeding Intervals.—Shall the infant be fed at the familiar, regular three or four hour intervals, or shall one advise the "demand" or "self demand" regimen on which the baby is fed whenever he cries? Spock has called it "the experiment of going back to Nature."^{26e} A Detroit group, the "Cornelian Corner," has urged that the infant be given "opportunity to nurse whenever . . . hungry or anxious," for "relief of tensions so incident to feeding, toilet training and child discipline."⁴⁵

The majority of physicians and mothers still prefer regular three or four hour feeding intervals.³³ Since the baby usually discontinues his 10 p. m. feeding in a few weeks, if not awakened for it, and the remaining night feeding around the end of the second month, the same result is obtained by either method. A regular schedule not too rigorously followed is probably the most sensible course to adopt, avoiding both unbending punctuality and the *laissez faire* self demand.

Contraindications.—Contraindications for breast feeding are not nearly as numerous as they were formerly. The following list is sensible:

- Allergy to mother's milk.
- Failure to supply one half of caloric needs, with failure to gain.
- Fissured nipples with bleeding bases, or mastitis.
- Menstruation soon after onset of lactation (?).
- Pregnancy.
- Acute illness of mother.
- Painful breasts.
- Rh-positive infant of Rh-negative mother. (However, experimental work seems to prove this milk harmless.^{25b})
- Nursing in maternal tuberculosis "may demineralize lesions which are otherwise slight or clinically cured."⁴⁶

Infantile eczema^{8b} and changes in color of stools are no longer considered cause for weaning. (Other authors list some of the ridiculous excuses given by mothers for stopping nursing.)

To prevent trouble with nipples, they may be pulled out and held so, if inverted; they may be toughened with alcohol during two or three months ante partum, as advocated by most writers, though one expressed a preference for use of wool fat rather than alcohol.³⁶ (Another writer advocated examining girl babies for inverted nipples and giving them the same treatment of pulling out and holding the nipples, to make them fit for nursing in their adult years.⁴⁷) Prevention and treatment for sore nipples vary with different writers—castor oil and a bismuth compound on a square of waxed paper, "aeration" by sewing a metal ring with semicircles of wire into the brassiere,^{26a} and plastic nipple shields.⁴⁸

For prevention as well as treatment of caked breasts, "uplift brassieres" or other elevating measures are advocated.⁷ One author has suggested antepartum manual expression, to be continued two or three days post partum, to forestall caked breasts.^{18a} If the condition occurs, the surgeon usually takes over; even so, many insist that "breast abscesses are not cause for weaning, provided no sinus is discharging."^{2b}

41. Salley, E. McQ.; in discussion on Richardson, F. H.: Technique of Breast Feeding, North Carolina Med. J. 9: 510 (Oct.) 1948.

42. Ward, J. L.: Hypertonic Infant, with Special Reference to Pyloric Obstruction, Arch. Pediat. 44: 706 (Nov.) 1927.

43. Rosamund, J. H. E.: Breast Fed Babies Who Cry at Night, Southern M. J. 14: 768 (Oct.) 1921.

44. Rodda, F. C., and Stoesser, A. V.: Complemental Feeding and Care of the Skin of the Newborn, Wisconsin M. J. 37: 547 (July) 1938.

Ward, L.: Personal communication to the author. Wyckoff.^{25a}

45. Batemeier, I. H.: Concerning the Cornelian Corner, Am. J. Orthopsychiat. 27: 594 (Oct.) 1947; *ibid.* J. A. M. A. 136: 881 (March 27) 1948. Trainham, G.; Pilaian, G. J., and Kraft, R. M.: Case History of Twins Breast Fed on a Self Demand Regime, J. Pediat. 27: 97 (Aug.) 1945. Rowan-Legge, C. K.: Self Demand Feeding of Infants, Canad. M. A. J. 60: 388 (April) 1949.

46. de Petinto, M. P.: Breast Feeding, Med. iberica 2: 29 (July) 1928.

47. Root, A. S.: Personal communication to the author.

48. Abramson, M.: Breast Feeding the Newborn (Evaluation of a New Technic of Breast Care) Gen. Pract. Clin. 4: 318 (Oct.) 1947.

Obstacles to Breast Feeding.—Most formidable of all obstacles to breast feeding is the indifference, and at times the actual opposition, of a large segment of the medical profession. Next comes the attitude of the hospital personnel in so many institutions, especially the nurses and supervisors, who naturally take their cue from those above them.

How discouraging their cynicism as to the feasibility of nursing can be to the mother who wants to nurse her baby is seen in two articles in a national women's magazine. They should be read and pondered by those physicians who deny that there exists such active opposition to breast feeding, as well as lack of interest and faith, on the part of a great many physicians, especially in the East.⁴⁹

I would call to the attention of any physician who is still dubious about breast feeding as the most scientific method of feeding infants the words of a pioneer in this field. J. P. Sedgwick wrote in 1917: "We know enough now to save the breast milk for most of the babies who need it. It has become a question of getting the information to the profession and the nurses and the public."⁵⁰

SUMMARY

An unsolved mystery has always been the willingness of so many physicians to abandon breast feeding without a serious effort to conserve it. A study of some four hundred titles has revealed as many differences of opinion, quite as ardently held, as were some of the various theories on bottle feeding for which physicians used to do battle so valiantly a generation or more ago.

If physicians who deal with infants will check these various views against their own experience and will develop individual technics, just as anyone must who employs artificial feedings in the care of infants, then it can truly be said that breast feeding has fully come of age.

ABSTRACT OF DISCUSSION

DR. ALICIA GALLAGA ROMERO, México, D. F.: This problem is not so disturbing in Mexico, since the Mexican woman from ancient times has attributed importance to nursing her children. There is an illustration of this in the old history of the Nahuatl, a tribe who once lived in the Valley of Mexico, in which we read that their women were trained to nurse their children. Whenever a woman gave birth to twins, the weaker child was killed so that the mother could have milk enough to raise a happy and healthy descendant. This idea was so much impressed in their minds that if a mother died while her child was still being fed at her breast, her soul was supposed to enter the House of Silence, where the Lord of Mictlan or Mictlantecuhli ruled, and from this place she continued to nurse her child. But if it was the child who died during the period of suckling, it went to a mansion called *Chichihuacuauhco*, where there was a large tree from whose branches milk was dripping to feed the child. It is a well recognized fact in Mexico that most of the digestive disturbances in children fed by their mothers are benign, while most of the disturbances in children artificially fed are serious. Human milk does not require preparation, it is immediately obtained at the proper temperature, and it is free of bacterial contamination. Commercial milks are out of the reach of the poor classes with whom I work: 92 per cent of the city children are nursed at their mothers' breasts, while 98 per cent of the country children receive this type of feeding.

DR. M. HINES ROBERTS, Atlanta, Ga.: I shall give briefly my experience in feeding 1,000 newborn infants, or those brought during the first year of life chiefly for guidance as to nutrition.

Over the years my own attitude has changed from that of the physician advocating breast feeding with almost religious fervor to one who presents the commonly accepted arguments for breast feeding to the mother. She is then permitted to make her own decision without persuasion or coercion. These babies were all from private practice, not from clinics. Only 763 babies were nursed at birth. The other 237, the mother chose not to attempt to nurse. Almost 25 per cent, then, of the entire group were weaned at birth. By two weeks of age, 149 additional infants had been weaned, making a total of 386, and by 1 month of age only 352 of the 1,000 infants remained at the breast; 648 babies (almost 70 per cent) had been weaned by 1 month of age, and of this number about one third were weaned chiefly because of the mother's refusal to attempt nursing. Another large group was weaned in the second month. Thereafter, the weaning was a gradual process, indicating that these 200 mothers had proved to be fairly successful milk-producers. Did early weaning prove detrimental? To answer that question correctly would require years of careful observation of the physical and mental development of these children, and such an answer I cannot give. Obvious and simple comparisons can be made, however. The comparative rates of gain in weight were observed in 313 babies who were weaned in the first 2 weeks of life and in 65 infants who were nursed until they were 5 to 10 months of age. The rates of gain in these two groups were compared with arbitrarily chosen standards of weight gain for given ages. Only 15.5 per cent of the babies in the artificially fed group fell below the average weight increments, whereas 32 per cent of the breast-fed babies were below this average. An attempt was made to determine the number of infants encountering feeding difficulties as related to the time of weaning. By "feeding difficulty" is meant the inability of the infant to take the commonly employed formulas. Patients requiring minor adjustments in the formulas, such as a change or reduction in carbohydrates or a lowering of fat content, were not considered to have feeding difficulties. Infants with severe cases of colic, diarrhea, milk idiosyncrasy or allergies—dermal, respiratory or gastrointestinal—necessitating basic changes in the formulas, are included in this classification. It is difficult to make any comparison between the ability of the breast-fed baby and that of the artificially fed baby to handle the basic food of their respective group. Since the infants exhibiting feeding difficulties were as a rule in much distress, drastic change in feeding seemed indicated, and in the case of the breast-fed baby this almost always meant weaning. Therefore the fact that the 96 babies who remained on breast feeding after 5 months of age experienced no feeding difficulties simply indicated that by this age all infants having such difficulty, or almost all, had already been weaned. Ninety-six infants had no feeding difficulties. If one compares the 648 babies weaned during the first month of life, when weaning was due, as a rule, to refusal or inability of the mother to nurse the infant, with those weaned at 2, 3 and 4 months of age, when weaning was due to increasing numbers of infants having feeding difficulties, a rough comparison can be made. It would seem that the percentage of infants having difficulty varies little in the two groups. It should be remembered that babies who have true feeding difficulties while receiving breast milk as a rule continue to have feeding problems on all artificial food. While I have no comparative figures, it is my impression that feeding problems, particularly those of allergic infants, are definitely on the increase. Certainly, for 648 babies, otherwise normal but weaned during the first month of life, a total of 93 (14 per cent) exhibiting feeding difficulties seems excessive. Whether or not early weaning is detrimental, physicians should be realistic and accept the fact that the large majority of the infants will not be breast fed and that their nutritional status on the whole appears as good as, or possibly superior to, that of infants who are breast fed.

DR. FRANK HOWARD RICHARDSON, Asheville, N. C.: This paper is not to be taken as propaganda for breast feeding. I have done enough of that in my time. This paper incorporates something that to the best of my knowledge has never before been presented, namely, a review of the literature on breast feeding showing many shades of opinion on the various cardinal points involved.

49. Brown, E.: Nursing Your Baby, Ladies Home J. 58:23 (Feb.) 1941. Carroll, G. H.: I Nursed My Baby, Ladies Home J., January 1945.
50. Sedgwick, J. P.: Establishment, Maintenance and Reinstitution of Breast Feeding, J. A. M. A. 69:417 (Aug. 11) 1917.