The technique of taking vaginal smears and a method of staining them for examination are described. A short account of the cells found in vaginal smears is given.

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DIFFICULTIES ASSOCIATED WITH BREAST-FEEDING

A STUDY OF 106 PRIMIPARAE

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Medical students and nurses are usually taught that breast-feeding is best for the baby and satisfying for the mother; it is tacitly assumed, and occasionally affirmed, that such a "natural" process can be successfully undertaken by most mothers who are keen to do so.

Nevertheless, breast-feeding seems to be declining. Recent surveys in widely separated areas of the United Kingdom show that only about one-third of mothers are breast-feeding by the end of the third month. The rate at this time is higher in the upper than in the lower social classes (Ross and Herdan, 1951; Douglas, 1950; Westropp, 1953; Spence *et al.*, 1954; Hytten and Thomson, 1955).

Several attempts have been made to determine why individual mothers give up breast-feeding prematurely. Most of the studies have been retrospective and based either on routine clinical records or on special interviews with the mothers, sometimes long after the event. In several studies of breast-feeding failure, a definite cause was not established in from 40 to 60% of cases (Robinson, 1943; Hughes, 1948; Ross and Herdan, 1951). In others the proportion of unexplained failures is much lower, mainly because "insufficiency of lactation" is suggested as the cause in many cases. For example, Dummer (1949) attributed 51% of failures to "physiological insufficiency," but made the observation that the term "covers a multitude of unsatisfactory causes";

Stocks and Stang (1953) considered that more than 60% of their cases were due to total failure or insufficiency of lactation; and Williams (1947) concluded that the "milk went away on resuming house-work" in 29%. Others have recorded such vague or remote causes as "psychological reasons," "worry," "excitement," "illness in the family," and "overcrowding." Most clinicians would probably agree that the causes of failure are in fact often vague and multiple.

Since women are well aware that medical opinion in general favours breast-feeding and, by implication at least, disapproves of bottle-feeding, the reasons they offer for giving it up may well be coloured by that knowledge. Even the mother who is not intent on self-justification may find it impossible to give a complete and objective account of the events which led up to her decision. Spence *et al.* (1954) say that failure of breast-feeding is "an exceedingly complex problem, difficult to approach without prejudice, and almost impossible to assess by objective experiment." To avoid some of the faults of earlier studies, particularly retrospective inquiries, Williams (1947) suggested that a more intimate approach would be necessary. This paper describes the methods and summarizes the findings in an "intimate" study of primiparae who left hospital breast-feeding, and were followed up for three months after delivery.

Material and Methods

Sample of Women.—Between October 1, 1954, and December 31, 1955, 1,075 married primiparae, booked hospital patients resident in the City of Aberdeen, were delivered of a single healthy baby weighing 5½ lb. (2.5 kg.) or more. Of these, every ninth in order of confinement was asked while still in hospital to take part in a follow-up study. Of 119 so singled out, three refused to co-operate, 11 whose dates of discharge from hospital coincided with holidays were "lost," and 18 abandoned breast-feeding in hospital, leaving 87 to be visited at home. A random sample of this size is likely to contain very few women of the highest and lowest social classes. Since these classes show the greatest contrast in breast-feeding performance, eight women previously in professional or technical occupations and 11 who had been fishworkers were added to the random group to give a total of 106 mothers to be studied to the end of the third month.

Home Visits

The investigator (J. C. Y.) had examined daily during their stay in hospital all the prospective members of the study group and had come to know them well. The first home visit was made within two days of discharge from hospital. From experience gained in a pilot study it was decided that visits should be made twice weekly during the first month, once weekly during the second month, and fortnightly during the third month. If difficulties arose visits were made more often. Home visits were made as informal as possible and usually lasted about half an hour; they had to be limited to those times when the baby could be examined and weighed without disturbing its normal times of sleep, and when the mother was at home and not resting. On account of these restrictions only two new cases could be taken on each week.

The conditions for such an inquiry enunciated by Hytten and Thomson (1955) were observed: "The investigator, preferably a doctor, must be readily accepted into the patient's home and must be able to discuss the baby's feeding dispassionately and at frequent intervals, with full knowledge of all the circumstances, domestic as well as medical, and without giving the woman the impression that he* is taking sides for or against breast-

*The success of the present inquiry might well have been less had the investigator (J. C. Y.) not been a woman, married, and of about the same age as most of the subjects.

feeding. . . . Unless they feel free of guilt in expressing a preference for bottle-feeding, the truth may be concealed."

It was vital to the experiment that the mother should not believe herself to be pursued by a champion of breast-feeding. She was therefore told that the purpose of the inquiry was to study the health and growth of normal babies, and equal interest was shown whatever the method of feeding. No treatment or advice was given except, if advice was asked for, to recommend that the mother should see her own doctor, or visit a mother and child welfare clinic.

Information Collected

At each visit questions were asked, and the answers, recorded immediately afterwards, concerned: (1) *the baby*, its general health and behaviour, crying, feeding schedule, and difficulties, if any; (2) *the mother*, her general health, appetite, and energy, and the condition of her breasts and nipples; and (3) *the background*, which was described in more narrative form to cover (a) housing and the amount of housework done; (b) the mother's general capability; (c) the attitude to the baby and to breast-feeding of the mother, and, if possible, of the father and other relatives or other occupants of the house and their previous experience of breast-feeding; and (d) the influence on the mother of outside opinion.

It is obvious that any report of difficulty with breast-feeding must be a personal assessment by the mother herself and can never be reduced to a quantitative basis. One mother may consider her baby's crying to be "normal" and scarcely worth reporting, while to another the same amount of crying indicates a menace to the baby's welfare and causes worry, loss of sleep, and fatigue. To give an objective check on the subjective assessment of health and progress of baby and mother, the baby was weighed on portable scales once a week during the first two months and twice during the third month. The mother was weighed at intervals of two weeks. This presented certain difficulties; while it was obviously desirable to be as accurate as possible, undressing for the purpose would have been resented by many women and might have harmed the friendly relationship which was so important for the success of the investigation. The mother was therefore weighed each time in her ordinary clothes, but without shoes. An allowance was made for the weight of clothes. The scales themselves, which were necessarily of the portable "bathroom" type, were adjusted before each weighing.

The difficulties recorded were those brought to the notice of the investigator by the mothers themselves at the time of occurrence. They were not necessarily followed by cessation of breast-feeding. There was no attempt to systematize the inquiry in advance, and the main groups of difficulties, shown in Table I and discussed below, emerged as the records were sorted and analysed.

Results

Of the 106 women studied in this way (87 from the random sample, 8 with an upper-class background, and 11 fishworkers), 104 experienced breast-feeding "difficulties" of one kind or another, and 74 of them gave up breast-feeding within three months. The causes are shown in Table I.

Of the entire sample only two mothers experienced no difficulty during three months of breast-feeding. Both felt well, had excellent appetites, and found breast-feeding easy and enjoyable; both babies thrived. The domestic circumstances were somewhat unusual; both lived with their mothers, had little domestic responsibility, and received considerable help with the baby. Indeed, their only regular occupation was breast-feeding. One was noted initially as preferring to breast-feed, the other as indifferent. Another four of the 32 women who continued breast-feeding for three months had only trivial difficulties. The rest per-

TABLE I.—*Incidence of Circumstances Which Interfered with Breast-feeding and Their Influence on Weaning in 106 Primiparae*

Circumstances Interfering with Breast-feeding	No. Affected	Weaned	
		No.	%
The difficult baby:			
Excessive crying	68	41	60
Specific illness	18	4	22
Feeding defect	5	3	60
Maternal difficulty:			
Inadequate lactation	40	28	70
Breast and nipple abnormalities	41	20	49
Ill-health	8	4	50
General fatigue	47	11	23
Menstruation	4	1	25
Other influences:			
Persuasion by third person	16	12	75
Unsatisfactory housing	3	2	60
Return to work	2	2	100

severed in spite of difficulties. In all, 23 of the babies were fully breast-fed throughout the three-months period; nine others had complementary feeds of cow's milk.

Of the 74 women who gave up breast-feeding within three months, 10 did so from choice before difficulties were experienced. The remaining 64 appeared to give up because of difficulties. In the first month 46 began bottle-feeding, all but two of them within two weeks of leaving hospital; in the second month 15, and in the third month 13.

The Difficult Baby

Excessive Crying.—Of the 106 mothers, 68 (64%) became worried because the baby cried so much, and 41 of them abandoned breast-feeding at least partly because of the crying. In 29 babies the crying appeared to be associated with underfeeding; in 34 cases there was no evidence of underfeeding (in that the babies gained weight at a rate of 5 oz. (140 g.) or more weekly—see "inadequate lactation" below) and the crying was often of the type commonly described as associated with "three months' colic." In both these groups the clinical picture was predominantly that of "hunger," and the one would often have been indistinguishable from the other without a knowledge of the weight gain of the baby. The clinical features of crying from "hunger" in babies who are gaining weight satisfactorily have been described elsewhere (Yorston and Hytten, 1957); in all cases where the change was made to bottle-feeding crying ceased dramatically and the babies became placid and contented. Such babies may have a relative hypermotility of the gut, so that the fine curd of breast milk passes rapidly through the stomach, leaving it empty soon after a meal. In the remaining five cases the cause of crying could not be diagnosed. Two of these were weaned after a day or two and crying stopped at once. In the other three, crying did not persist and did not lead to weaning.

Illness.—Eighteen babies (17%) had a specific illness severe enough to interfere with breast-feeding, but only four were weaned on that account. The illnesses were: upper respiratory infection, 9 (2 weaned); pyloric stenosis, 1 (weaned); congenital heart disease, 1 (weaned); oral thrush, 4; diarrhoea, 2; and severe conjunctivitis requiring treatment in hospital, 1.

Feeding Defect.—Five babies seemed unable to suck properly and three of them were weaned for that reason. One had been a "lazy baby" in hospital, and at the age of 3 weeks began to "fight the breast," sucking for only a minute or two and then pushing away and screaming. After one day of this the mother gave up breast-feeding. Another was given complementary bottle feeds because of a cracked nipple; when the nipple had healed the baby refused to fix, even with a nipple shield, and breast-feeding was abandoned. The third, after feeding well for 12 weeks and apparently thriving, suddenly refused to suck for more than three or four minutes; engorgement was the result and breast-feeding was stopped. The two that were not weaned had been slow to feed in hospital, but they gradually improved.

Maternal Difficulties

Inadequate Lactation.—Of the 106 babies, 40 (38%) consistently failed to gain 5 oz. (140 g.) a week (taken as a criterion of sufficiency of lactation), or required complementary feeds after repeated test-weighing earlier in the lactation had confirmed insufficiency of the breast milk. In most of these cases the evidence of the weight trend or of test-weighing was confirmed by clinical evidence such as "hungry" crying. A 24-hour milk sample was obtained for analysis on the seventh day from 85 of the 106 women in the study, so that in most cases of inadequate lactation further quantitative confirmation was available. The milk analysis data are not discussed here. The group includes the 29 underfed babies already described under "excessive crying"; 11 did not cry excessively. Three subgroups may be distinguished.

Lactation Poor from the Start (12 Cases).—Two babies had complementary feeds in hospital after test-weighing had confirmed inadequate lactation, and they were breast-fed, with complementary feeds, for at least three months. One mother whose baby gained, on the average, only 4 oz. (110 g.) weekly and cried incessantly, consulted her family doctor, who prescribed chloral hydrate. The crying and poor weight gain continued, the baby being wholly breast-fed throughout the three months. The remaining nine women abandoned breast-feeding within six weeks, four of them after trying complementary feeding.

Lactation Beginning Satisfactorily and Then Declining (14 Cases).—After an initial period of satisfactory growth and behaviour the baby appeared suddenly to be underfed. Only one mother continued to breast-feed for three months. Her baby, which had been gaining 10 oz. (285 g.) a week, suddenly gained only 3 oz. (85 g.) in one week, and seemed hungry, waking within two hours of being fed and crying until fed again. The mother noticed that her breasts were less full than normal. She had been feeling very tired, but improved in health after going on holiday, and her lactation recovered quickly. In three women there was no obvious reason for the fall in the milk yield; in each it followed soon after return from hospital. Details of the remaining 10 women are shown in Table II.

TABLE II.—Sudden Deterioration of Lactation

Associated Condition	No. of Cases
Maternal disability:	
Cracked nipples	2
Breast abscess	1
Influenza	1
Diminished suckling due to:	
Illness of baby	2
Complementary feeding	2
Maternal worry due to:	
Illness of baby	2

Lactation Initially Sufficient But Not Keeping Pace With the Growth of Baby (14 Cases).—In contrast to the pattern of weight loss in the previous group an initially satisfactory weight gain became progressively less, usually over a period of a few weeks. Nine of the babies became irritable and showed increasing signs of hunger; but the other five remained quiet and seemed contented. In 8 of the 14 cases breast-feeding was maintained until the end of the third month, in two of them with the aid of complementary feeds.

Breast and Nipple Abnormalities.—Of the total of 41 women affected by mastitis or sore nipples, 29 abandoned breast-feeding, the breast lesion being partly or wholly responsible for this in 20 cases. Fifteen breast-feeding women (14%) had mastitis, with abscess formation in four. Three of them, none with abscess, maintained breast-feeding during and after treatment. Thirty-one women (28%) had sore or cracked nipples, in four cases associated with mastitis.

Maternal Ill-health.—One woman who developed gastroenteritis and another with tuberculous adenitis and a severe non-tuberculous chest infection continued to breast-feed for three months. One with cystitis, one with influenza, one with puerperal insanity, and one with a paralysed arm which interfered with nursing stopped breast-feeding in consequence. Two others, one with cystitis and one with a generalized allergic reaction of obscure origin, eventually gave up breast-feeding for other reasons.

General Fatigue.—Forty-seven breast-feeding mothers (44%) said that they felt constantly and excessively tired;

17 of these nevertheless continued to breast-feed for three months. In the remainder, fatigue was never the sole reason for weaning, but it was an important factor in 11 cases. General fatigue was often accompanied by backache, dizziness, headaches, and repeated minor infections, such as boils and styes. Many of the women who were excessively tired lost more than the average amount of weight during lactation and were doing an excessive amount of housework.

Menstruation.—This affected breast-feeding in four cases. In three of these the milk supply diminished temporarily and the baby showed signs of hunger; in one, breast-feeding was discontinued. In the fourth case the baby had diarrhoea while the mother was menstruating.

Other Influences

Persuasion by a Third Person to Stop Breast-feeding.—Sixteen women, each of whom had experienced one or more of the difficulties listed above, came under strong professional or lay persuasion (in some cases this amounted to "nagging") to give up breast-feeding and 12 complied. Of the remaining four, two were advised by their family doctor to give up breast-feeding when mastitis occurred, but refused to do so; one was unimpressed by her dentist's statement that breast-feeding would harm her already badly carious teeth; and one did not heed a mother who thought breast-feeding was causing her to be excessively tired.

Unsatisfactory Housing.—Three women attributed difficulty over breast-feeding to unsatisfactory housing. One was given notice to quit her rooms when the baby was 6 weeks old; but, although this caused much worry, lactation was not affected. Two others, each living in a single room, found the baby's crying intolerable, and gave up breast-feeding; both suggested that the crying might have been tolerable if housing had been better, but in each case there seemed to be other more important reasons for giving up breast-feeding.

Return to Work.—Two women said from the beginning they would give up breast-feeding because they intended to return to work; neither was keen to breast-feed, though only one showed a clear preference for bottle-feeding. Five more mothers went to work before the end of the third month, all after giving up breast-feeding, apparently for other reasons. None had been keen to maintain breast-feeding.

Examples of Breast-feeding under Difficulties

Occasionally a mother would persevere with breast-feeding despite most discouraging circumstances. The following histories are illustrative.

A 24-year-old healthy woman left hospital fully breast-feeding after a trouble-free first week. She was quite keen to breast-feed—largely, it seemed, because her own mother was particularly enthusiastic about it. The baby was well and contented during the first month, apart from conjunctivitis. At about 4½ weeks he began to cry for long periods in the evening and "seemed hungry"; the crying was of the colicky type and was only temporarily relieved by feeding. It continued with varying degrees of severity during the remainder of the survey period. The mother felt particularly tired after leaving hospital and needed rest for much of the day. At 6 weeks she developed mastitis and wished to give up breast-feeding, but her doctor and her mother persuaded her to carry on. The mastitis cleared up, but she became progressively more fatigued. At 8 weeks the baby was given complementary feeds of cow's milk to try to stop the crying, and at 12 weeks cereals were introduced, but four-hourly breast-feeding was still continued at 14 weeks.

A woman aged 20 had cracked nipples and at the time of leaving hospital one nipple was not fully healed. The other nipple cracked again at home and it was three weeks before both were healed. The baby had mild conjunctivitis during the first week at home and at about 3 weeks developed a cold which persisted during the rest of the three months. On two occasions there were acute exacerbations with coughing and vomiting. Apart from this the baby cried infrequently and gained weight well. At 3½ weeks the mother developed swollen neck glands which proved to be tuberculous, and these were cured at the surgical out-patients' department at 12 weeks. At 5½ weeks she

had to go to bed because of acute bronchitis with pleurisy. At this point her husband tried to persuade her to abandon breast-feeding, but she was anxious to continue and was supported by her doctor. She was still fully breast-feeding at three months.

Breast-feeding in hospital was uneventful in another woman, aged 24, and she had an abundant milk supply. The baby developed thrush infection of the mouth during the second week, and several times during the first 3 months had an infection of the upper respiratory tract. From the third to the sixth week he cried a great deal in the evenings; the crying was "colicky" in type and was not relieved by breast-feeding. The mother had severe "colds" at 6 and 9 weeks respectively and complained of excessive tiredness. At 11 weeks she thought her milk supply was diminishing; the baby demanded feeds at three-hourly intervals and woke at 2 a.m. Mixed feeding was introduced and the baby became more contented. At 12 weeks the left nipple cracked. The mother was still giving breast-feeds four-hourly at the end of three months.

Summary of the Influence of Breast-feeding Difficulties

Where several difficulties occur simultaneously, as often happens, it is not easy to assess the relative importance of each in causing failure of breast-feeding. No attempt has been made in this investigation to determine a primary cause of failure in each case. Table I gives the total numbers of women affected by each "difficulty" encountered and the percentage of those affected who gave up breast-feeding. The most common complaints were, in order of frequency, babies who cried excessively, maternal fatigue, abnormalities of the breast and nipple, and inadequate lactation. Excessive crying and inadequate lactation often occurred together, and most frequently resulted in weaning. Mastitis and sore nipples were followed by weaning in just under half the affected cases, but only one-quarter of the women who complained of fatigue weaned the baby. Sixteen mothers were under pressure by relatives and friends to give up breast-feeding, and 12 of them did so; in these cases another factor, usually excessive crying of the baby, was always present. All mothers who had initially expressed a strong preference for bottle-feeding gave up breast-feeding within a few weeks, even if they had experienced no difficulty.

It was evident that symptoms suggesting harm to the baby, such as crying, are more likely to result in weaning than personal difficulties or discomforts such as sore nipples or fatigue, which do not affect the baby directly.

Incidence of Breast-Feeding Difficulties Within Social Classes*

Interclass comparisons are complicated by the fact that since upper-class women breast-fed longer than women in the lowest social groups (average length eight and three weeks respectively) they had more time in which to experience difficulty.

Detailed findings are not presented. In general it appeared that women in the upper social classes experienced such difficulties as a crying baby, inadequate lactation, and general fatigue more often than women in the lower classes. The latter had more difficulty from "poor housing" and more of them expressed antagonism to breast-feeding (see "attitudes of mind" below). The social classes differed little in other respects.

**Social Classification.*—The Registrar-General's Social Classification (General Register Office, 1951) is not entirely suitable for female occupations. For the purposes of this inquiry, mothers' occupations before marriage were classified as follows (Illsley, 1956). (1) *Professional and Technical:* e.g., teachers, trained nurses, doctors, social workers. (2) *Clerical:* e.g., clerks, typists, telephonists. (3) *Skilled Workers:* e.g., shop assistants, machine operators, weavers, dressmakers, waitresses. (4) *Semi-skilled and Unskilled Workers:* e.g., bus conductresses, domestic servants, packers, bottlers. (5) *Fishworkers:* e.g., filleters, washers, gutters, curers. Fishworkers would ordinarily be placed among the skilled workers, but experience in Aberdeen shows that in this city they are, from the point of view of social standing, more properly ranked below the group of semi-skilled and unskilled workers.)

It therefore seems that women in the upper social classes give up breast-feeding less frequently and less early than those in the lower classes because they are less easily discouraged by difficulties experienced, not because they experience less difficulty. For example, of women affected by mastitis and sore nipples, the proportion who gave up breast-feeding rose steadily from nil in the professional and technical group to three-quarters in fishworkers.

This suggests that attitude of mind may be as important as physical disability in determining whether breast-feeding will stop or be continued in the face of difficulties.

Attitudes of Mind

It is not easy to discover a mother's real attitude to breast-feeding while she is in hospital, where she feels that she is expected to breast-feed; no attempt was made to find out until the first home visit. It would undoubtedly have been easier to get an expression of opinion at a later visit, when mother and investigator had become better acquainted, but by that time the original attitude might well have been modified or obscured by the ease or difficulty clearly experienced. What was recorded was each mother's attitude to breast-feeding just after leaving hospital.

Attitudes to breast-feeding at the time of the first visit were classified as follows. (A) *Unqualified enthusiasm:* "I always thought I would breast-feed"; "I definitely want to breast-feed." (B) *Preference:* "I want to breast-feed if I have enough milk"; "I'd like to try to breast-feed; it's supposed to be best, isn't it?" (C) *Indifference:* "I will try it, but will be quite happy to change to the bottle if necessary"; "I'll try to breast-feed so long as everything is all right." (D) *Antagonism:* "I want to bottle-feed"; "I don't want to breast-feed, but my husband has persuaded me to do it for a while."

The incidence of attitudes, so defined, is closely related to social class. Table III shows that in the professional classes about one-third had an A attitude and none were in group D. Among fishworkers none had an A and almost

TABLE III.—Number of Women in Each Attitude Group Within Social Classes

Attitude	Social Status					All Social Classes
	Professional and Technical	Clerical	Skilled Manual	Semi and Unskilled Manual	Fishworkers	
A	5 (4)	2 (2)	4 (1)			11 (7)
B	8 (3)	14 (7)	17 (8)	11 (3)	3 (1)	53 (22)
C	3	7	14 (3)	4	4	32 (3)
D			1	3	6	10
All Attitudes	16 (7)	23 (9)	36 (12)	18 (3)	13 (1)	106 (32)

Numbers in parentheses represent those who breast-fed for at least three months.

TABLE IV.—Proportion of Women in Each Attitude Group Who Abandoned Breast-feeding in Association with Certain of the More Common Difficulties Experienced. Figures in Parentheses are the Numbers From Which Percentages are Derived

Cause of Breast-feeding Difficulty	Attitude		
	A	B	C
Baby crying	25% (8)	50% (38)	87% (22)
Inadequate lactation	29% (7)	70% (20)	93% (13)
Breasts and nipples	20% (5)	41% (22)	77% (13)
General fatigue	0 (6)	8% (24)	53% (17)
Persuasion to stop breast-feeding	50% (4)	75% (8)	100% (4)

half had a D attitude. Also shown are the numbers who breast-fed for at least three months in each social class and attitude group. It is clear that attitude is more important than social class in determining whether breast-feeding will be maintained or not. A strong initial preference for breast-feeding gives a good chance of success whatever the social class.

Table IV shows how attitudes and persistence with breast-feeding were related. It shows that the proportion of

mothers who wean on account of any particular difficulty is closely related to attitude. That does not mean that even an A attitude ensures adequate lactation. Of women with an A attitude whose babies cried excessively, only 25% gave up breast-feeding compared with 50% in group B and 87% in group C. But half the mothers in group A who were still breast-feeding at 3 months were giving complementary feeds, and of seven whose babies failed to gain 5 oz. (140 g.) weekly five were still breast-feeding at 3 months. Two of the babies cried constantly as well as giving evidence of underfeeding by their failure to gain weight satisfactorily, and two had complementary feeds throughout. By contrast, of 13 mothers who had no preference for breast-feeding (C attitude) and whose babies showed similar evidence of underfeeding, only one continued to breast-feed for three months. It seems reasonable to suppose that if bottle-feeding is necessary it is simpler to go over to it entirely than to maintain part breast-feeding and part bottle-feeding, and the higher proportion of dual feeding in the upper social groups must be the result of either a firm conviction that there is special virtue in breast-feeding or a superior determination to ignore its difficulties.

Breast-feeding Compared with Bottle-feeding

Of 46 women who gave up breast-feeding within the first month, 38 were successfully followed up until the end of the third month. Of the remaining eight, one was admitted to a mental hospital at two weeks, one baby was admitted to hospital because of a congenital cardiac defect; one family left Aberdeen at 8 weeks; the other five mothers returned to work and it proved difficult to trace the babies, since they were left with relatives all day.

Of the 38 mothers who continued in the study, six had given up breast-feeding for no other reason than that they preferred bottle-feeding, and the others because of one or more of the difficulties already described. These 38 mothers will be considered as a group and compared with 32 mothers who continued to breast-feed throughout the second and third months.

The findings are summarized in Table V. It is quite clear that both mothers and babies did better with bottle-feeding. The babies cried less, put on more weight, and were at least as healthy; and the mothers, apart from escaping trouble with breasts and nipples, were less tired. While it might be argued that these figures are too small for generalization, a much larger investigation now in progress suggests that this picture fairly represents the general position in Aberdeen.

TABLE V.—*Comparison of Difficulties Experienced During the Second and Third Months by 38 Mothers Who Had Abandoned Breast-feeding and 32 Who Continued to Breast-feed*

Difficulty	38 Bottle-feeding	32 Breast-feeding
Excessive crying	8	17
Illness of baby	11	9
Underfeeding	5	13
Breast and nipple abnormalities	1	7
Maternal ill-health	2	2
Maternal fatigue	10	16
Menstruation affecting infant feeding	—	2
Housing difficulty	—	1
Mother well	25	8
Baby thriving	22	10
Mother well and baby thriving	20	6

Discussion

For a primipara without domestic help normal breast-feeding is exacting, especially during the first weeks after confinement. Her main concern is for the baby's welfare, and she is likely to spend six to eight hours daily feeding, changing, and washing it and generally catering for its needs; and at the same time she has to run her home and prepare meals as usual. She is often emotionally unstable and often lacks confidence in her ability to manage the

baby; molehills may appear as mountains. The physical strain is increased by the fact that she cannot count on more than about four consecutive hours' sleep. To produce the increasing amounts of breast milk needed for the growing baby she has to drink and eat more than usual; otherwise she must lose weight excessively, or the flow of breast milk must diminish.

It may be thought that this investigation overestimates the difficulties of breast-feeding in general because it is concerned with first lactations only, but the success or failure of the first may well determine whether a second will be attempted, and in subsequent lactations the domestic load is increased by the previous children.

According to Isbister (1954), "The happiness and exhilaration associated with relaxation and relief of tension that accompany a normal breast-feed is the right of every mother and of great importance to the woman in the puerperium." Illingworth (1953) says: "I have not found papers which show that there are any disadvantages in breast-feeding. . . . Breast-feeding is easier and cheaper for the mother. It may have advantages from the psychological point of view. There are no disadvantages of importance."

Mothers do not seem to agree with such pronouncements. After studying breast-feeding in Aberdeen for several years, we have been forced to recognize that remarkably few mothers say that breast-feeding was easy and satisfactory and even fewer that it induced "happiness and exhilaration." Again, most mothers who have given up breast-feeding are emphatic that when the baby was given bottle-feeds he slept better, cried less, required less attention, and was generally healthier, and that they themselves felt less tired and harassed and more confident. There is, in fact, a widespread preference for bottle-feeding, particularly among working-class mothers, who are prepared to justify their preference with a wealth of personal experience to any friendly listener. A majority of mothers act on this preference by giving up breast-feeding, although they are aware that most doctors, nurses, and health visitors disapprove.

It is important for the medical and nursing professions to decide whether this remarkably consistent testimony by mothers, that breast-feeding is seldom an unqualified success and that bottle-feeding gives less trouble on the whole, should be accepted or refuted. If we wish to halt or reverse the present decline in breast-feeding new methods will have to be adopted. But we must first ask ourselves this question: If medical education were more successful in inculcating maternal attitudes favourable to breast-feeding, would most mothers then find breast-feeding as easy, beneficial, and even pleasurable as has been claimed? The present study was undertaken to try to answer such a question. We wished to know if an observer, present when the events were taking place, would find that breast-feeding was generally easier than the mother claimed, and if it was given up in favour of bottle-feeding out of prejudice.

It is clear that the mother's attitude plays a considerable part. Nevertheless, relatively few mothers were obviously prejudiced against breast-feeding from the start, though many were only lukewarm in its favour. It was shown that the maternal attitude accounts for most of the social-class gradient in breast-feeding rates, a favourable attitude being more common in the upper social classes and less common at lower social levels.

It is not surprising that attitude should be more closely related to breast-feeding performance than social class; the former is specifically concerned with breast-feeding, the latter is not. At no social level, in a community such as our own, is there a strong spontaneous folklore which makes breast-feeding the obvious and "natural" thing to do. Breast-feeding in public would be considered indecorous, perhaps even indecent. Medical propaganda in favour of breast-feeding scarcely affects children, who, by contrast, are aware from an early age of the impressive pictures of bonny babies assiduously advertised by manufacturers of breast-milk substitutes.

In the present study only 32 out of 106 primigravidae maintained breast-feeding till the end of the third month. Only two of these found breast-feeding to be an unqualified success; although neither had started with a strong preference for breast-feeding, in both the domestic circumstances were unusually favourable. Of the remaining 30, a few escaped with only minor trouble. The majority found breast-feeding to be difficult and worrying, and none of them found it physically or emotionally pleasurable. Half of them felt very tired, and many were seriously worried because the baby cried a great deal or became ill. We obtained evidence supporting an earlier conclusion "that about one-third of primigravidae have an inadequate capacity for lactation because of either a poor milk yield or a low fat content, or both" (Hyttén, 1954a).

By contrast, 20 of the 38 mothers who gave up breast-feeding within a week or two of leaving hospital remained very well and had no anxiety about the baby. Six of them had stopped breast-feeding because they openly preferred bottle-feeding; the remainder because of some real or suspected difficulty. Out of the total of 38, 25 mothers and 22 babies did well. Only eight of these mothers complained of chronic fatigue and two others of slight or transient fatigue.

In modern society, the women who make the greatest effort to carry on breast-feeding after leaving hospital come mostly from the upper social classes, despite the fact that in some ways they have more difficulties to contend with than those from the lower classes. They are older, on the average, and are less likely to produce an initially satisfactory flow of breast milk (Hyttén, 1954b, 1954c). They set themselves high standards of housewifery and child care, and worry more about minor deviations from what they consider normal. Their social circumstances may also involve the expenditure of more physical energy, particularly in these days when domestic help is both scarce and expensive.

Women in the lower social classes, being younger and having less exacting responsibilities, are in many ways at an advantage if they decide to breast-feed, but relatively few are convinced that it has any advantage to outweigh the reassuring fact that with a bottle "you can see what the baby is getting." The results of this inquiry lend them support, and, since the weaning rates in Aberdeen are similar to those reported from other parts of Britain, it is probable that a majority of mothers in other areas hold similar views.

It seems likely, then, that many of the difficulties of breast-feeding in modern society result directly from the pressure of civilization. The customs of primitive society may be more conducive to successful breast-feeding. In many tribes the mother does little else but care for her baby, at least for some weeks after parturition, since under the "joint family" system she is relieved of routine domestic responsibility and puts the baby to the breast whenever it seems hungry. The fact, too, that she knows of no other way to feed a young baby may prevent any doubt arising in her mind about her ability to breast-feed, and should save her from the danger of too much and conflicting advice. Her hopes for the individual baby will doubtless be less exacting, since the birth and the infant mortality rates are both relatively very high. We do not know how efficiently the babies are nourished compared with our standards.

A woman who is determined to breast-feed may persist even when the chances of success are small, and when a change to bottle-feeding would benefit both mother and child. This is well illustrated by the history of a former nurse who was obsessed with the importance of continuing to breast-feed, although the baby was crying incessantly and gaining only 4 oz. (110 g.) a week. She was convinced that the crying was due to colic, which she attempted, without much success, to subdue by the administration of chloral hydrate; she continued full breast-feeding for three months. It is quite possible that a baby reared in this way may be damaged both physically and psychologically, and the mother subjected to much pointless and avoidable strain.

Where breast-feeding policies are pursued too enthusiastically, such cases may not be very unusual, and a high rate of "success" in breast-feeding may conceal a good deal of ill-health.

Since the mother's attitude is an important influence on the outcome of lactation, it is reasonable to assume that breast-feeding rates could be raised by intensive propaganda. The justification in more fundamental terms for such propaganda is, however, doubtful. While many more women might be persuaded to make the effort to maintain breast-feeding, the fact remains that, even among women in the upper social classes who are keen to breast-feed, only about half do so for three months. An appeal to safety is not nowadays wholly convincing, since infant mortality has continued to fall *pari passu* with the decline in breast-feeding.

The moral seems clear. We should help in every way possible the woman who wishes to breast-feed, but we are not justified in putting pressure on those who are unwilling or who appear to be unable to breast-feed efficiently.

Summary

An intensive follow-up for three months was made of 106 primiparae who left Aberdeen Maternity Hospital breast-feeding. All but two of them experienced difficulty with breast-feeding and 74 abandoned it within three months. More than one difficulty often occurred simultaneously, and the relative importance of each was usually impossible to assess. The most common complaints were of babies who cried excessively, maternal fatigue, breast and nipple complications, and inadequate lactation. Symptoms suggesting harm to the baby, such as crying, were more likely to result in weaning than difficulties or discomforts affecting the mother only.

The most important influence in determining whether or not breast-feeding was abandoned in the face of difficulty was the mother's attitude of mind on which social-class differences in performance seemed mainly to depend.

Mothers who continued to lactate throughout the three months were more often unwell and worried than those who abandoned breast-feeding soon after leaving hospital, and the breast-fed baby had no obvious advantage.

It seems that the breast-feeding mother in modern urban society often has to accept a heavy load of discomfort and disability, and that this is attributable more to her way of life than to the fact of breast-feeding *per se*.

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