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THE MODERN DECLINE OF BREAST-FEEDING *

BY

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Prosperity and social comfort have not encouraged maternal breast-feeding of the human infant. There can have been few women of fashion in the eighteenth century who did not hire a wet nurse to succour and suckle their babies. At that time the wet nurse was the mother-substitute, and failing a wet nurse the mother must feed her own infant or it would die. Now we have changed all that. Since then we have learnt how to feed babies on cow's milk in a simple and relatively safe manner. We have invented the feeding-bottle and the rubber teat. Chemists have shown us the composition of milk, and commerce has made it available for all. We can have it fresh, dried, or condensed. We know how much to give and how to give it in order to promote an infant's growth. So the cow is now the mother-substitute, and in this country there is no mother who cannot obtain this substitute if she so desires it. It is therefore an appropriate moment to ask ourselves to what extent there is a decline in maternal breast-feeding, and to inquire into the cause and effects of this decline. If it be found that a considerable proportion of women are gestating and bearing children but are cutting short this reproductive cycle by failing to lactate, it is surely both a matter of biological or clinical importance and a social experiment of great scientific interest.

The clinical importance of breast-feeding has always been recognized by paediatricians; but here again it is an appropriate moment to remind ourselves of this fact, for the infant mortality in this country remains twice as high as that in many other countries, and in some of our industrial towns it remains three times as high as it is, for example, in towns of similar size in Australia. Moreover, in some of our towns it has been slowly rising in recent years in spite of an increase in public expenditure on child welfare. This means that of the 40,000 deaths of infants each year in this country 20,000 might be prevented, or, to bring it nearer home, of the 500 infant deaths which take place each year in some of our industrial towns at least 300 could be prevented. The Edwardian question, "If preventable, why not prevented?" should be sufficient to keep alive our clinical interest in this important subject. That it is important can be recognized by comparing it with the clinical and social significance of a disease like pernicious anaemia. There can be no more than 7,000 or 8,000 people with per-

nicious anaemia in this country, yet the scientific and clinical interest involved in treatment of these old people is out of all proportion to that devoted to the prevention of the 20,000 preventable infant deaths each year.

It may be said that I am pushing an open door, that it is well recognized that an encouragement of breast-feeding is one of the methods of combating the excessive infant mortality. But there are many who do not recognize it. Let me quote a medical officer of health of one of the large towns who has recently written in his annual report: "I have reached the stage when I question very much if there is any material advantage in keeping an infant on the breast. Further, I believe that fewer dietetic troubles occur in the artificially fed babies, because there is less likelihood of overfeeding and irregular feeding and there is greater control of the diet. I have not seen any recent evidence to suggest that the artificially fed child is more prone to disease or more likely to succumb to disease than his naturally fed brother, neither do I think that he is responsible for the large number of rejects found amongst recruits to the national services. Finally, so far as the mother herself is concerned, I think it is to her advantage that she should not feed her child. The whole action of feeding acts as a drain on her resources and curtails her activities over a long period, and certainly does not encourage her to increase the number of her family." There can be no doubt that statements like this encourage the use of cow's milk at the expense of breast-feeding and that they represent a view which is spreading in some sections of the community.

The Incidence of Breast-feeding

Accurate information about the incidence of breast-feeding is difficult to find, and is still more difficult to compare on account of the difference in the methods of enumeration used. We desire to know what proportion of babies in various countries or in different social groups are breast-fed or artificially fed from birth. We desire to know also at what age weaning takes place. It is this precise information that is lacking. Some observers record their results by estimating the average duration of breast-feeding, others the proportion who are entirely breast-fed for six months or nine months. But there is no commonly adopted system of collecting statistics which tells accurately when women wean their babies. From maternity hospitals we can obtain accurate information about the feeding of infants in the first few weeks of life. This in itself is valuable, for in this neo-natal stage proper

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nutrition and protection from inimical influences are more important than at any other age. Moreover, since a large proportion of babies are weaned shortly after this neonatal stage the incidence of breast-feeding at this time tells a good deal about the trend of events.

In Newcastle Dr. Frank Stabler has made careful statistical studies of the clinical material in the Princess Mary Maternity Hospital in recent years. He has supplied me with the following figures, which represent the percentage of those infants leaving hospital at about the end of the second week of the puerperium who are wholly breast-fed:

1933 (1,431 infants) .. 87.8%	1935 (1,436 infants) .. 80.9%
1934 (1,460 ") .. 84.3%	1936 (1,346 ") .. 74.6%

These figures from a city maternity hospital do not perhaps give a fair example of the people, so I have collected information from a private nursing home for middle-class patients and have excluded all patients with obstetrical difficulties or physically defective children. The matron is a sagacious woman with a strong personality who encourages breast-feeding whole-heartedly. Between 1934 and April, 1938, there were 1,046 normal deliveries, and of these 76.8 per cent. of the infants left the home wholly breast-fed, 19.6 per cent. partially breast-fed, and 3.6 per cent. wholly bottle-fed. The majority of infants who are only partially breast-fed in hospitals are shortly weaned, so it is plainly to be seen that in this town satisfactory breast-feeding in the neo-natal period is maintained by only three-quarters of the mothers, and that there has been a significant decline in the incidence of breast-feeding in recent years. In Edinburgh Dr. T. Y. Finlay has made a careful estimate of the incidence of breast-feeding by visits to the homes of three sample groups totalling 3,000 mothers, and has allowed me to use his results. The sample groups agree closely, and show that at the tenth to fourteenth day 87 per cent. of the mothers are wholly breast-feeding their infants.

There is an immediate decline in the incidence of breast-feeding when the mother resumes domestic and social duties. Dr. George Brewis has collected statistics of 1,326 infants who attended the municipal welfare centres in Newcastle in March, 1938. Of these, 58.4 per cent. were wholly breast-fed at three months and 34.7 per cent. at 6 months. In Edinburgh, of the 3,000 mothers visited between the third and sixth months 55 per cent. were continuing to wholly breast-feed their infants and 38.5 per cent. when visited after the sixth month. In both towns the child welfare services give ardent encouragement to the mothers to breast-feed their infants, so the results may be regarded on the high-water mark of achievement in big towns under prevailing conditions. A similar state of affairs obtains in other towns and other countries. In a South Lancashire centre in 1933 Wilson found that 50 per cent. of the infants were weaned at the third month. In an American village Bisal found that only 31 per cent. were breast-fed for three months. In Scandinavia two investigations have shown that 32 to 40 per cent. were breast-fed for six months. In Riga only 19 per cent. were wholly breast-fed for six months. In America conditions vary greatly. One observer writes, "My conclusions show that breast-feeding exclusively for the newborn is about extinct in Brooklyn amongst the middle-class mothers." Yet in Chicago of 20,061 infants under the care of the welfare service from 1924 to 1929, 48.5 per cent. were entirely breast-fed for nine months.

For our argument it is safe to assume that, apart from the little milk that may be yielded in the first few days, 20 to 30 per cent. of babies are artificially fed from birth

in many if not most of our big towns, and that not more than a third of the mothers of these towns are fully feeding their babies until the sixth month. My experience is that bottle-feeding is a habit which readily spreads. If one woman in a maternity ward resorts to bottle-feeding others immediately begin to find difficulties in their own ability to breast-feed. So under prevailing conditions we can presume that a further decline in the incidence of breast-feeding will take place.

Influence of Feeding on the Infant's Health

The medical officer of health whom I have quoted is not alone in questioning the superiority of breast-feeding over artificial feeding in maintaining the health of the infant, and the belief has spread to other quarters. Modern advertisements and other agencies have persuaded large numbers of women that artificial feeding is entirely safe and satisfactory for their infants and not disadvantageous to themselves. The mother-and-child subject favoured by the mediaeval painters has been replaced by the baby-and-bottle subject or the studio milkmaid subject of the modern photographic poster.

It is possible that hospital physicians seeing so much of sick infants are apt to exaggerate the dangers of artificial feeding. But, having taken that into account, it is beyond all question that breast-fed infants show a greater freedom from disease and a greater power of recovery from disease than artificially fed infants. The results in pyloric stenosis give straightforward evidence about this. In the Newcastle Babies' Hospital the mortality in 114 breast-fed infants with pyloric stenosis has been 5 per cent., but in 133 bottle-fed infants it has been 30 per cent. But the most complete evidence is to be obtained from the studies of Grulee and Sanford in Chicago. They investigated the morbidity rates and mortality rates in 20,000 infants. Including every minor disturbance of health, the morbidity rate in the breast-fed group was 37 per cent., in the partially breast-fed group 53 per cent., and in the artificially fed group 63 per cent. The mortality rates were still more striking. Of their 9,749 breast-fed infants only fifteen died, of 8,605 partially breast-fed fifty-nine died, and of 1,707 artificially fed infants 144 died. These figures are significant enough to require no elaboration. But apart from the immediate significance of high morbidity rates and high mortality rates in artificially fed infants, there may be remote ill effects which have not yet been recognized or defined. It is possible that some of the serious degenerative diseases of adult life have their origin in the artificial feeding of infancy. I know of no investigation of this problem which has been scientifically carried out to disprove this, and we may recognize that such remote results are within the bounds of possibility when we recall the wonderful clinical observations of Nye, that temporary exposure of children to the paint dust on veranda floors of wooden shacks produced arteriosclerosis and chronic nephritis thirty and forty years afterwards.

Breast-feeding and the Mother

There are difficulties in approaching this question of the effects of breast-feeding on the mother herself. Apart from the observation that repeated lactation in malnourished women may produce anaemia, there is very little scientific information on this subject. It might be suspected that women who have cut short the reproductive cycle by failing to lactate would be prone later to develop endocrine disorders. The pathological obesities which sometimes follow pregnancy suggest that a mismanage-

ment of lactation may be an example of this. In the absence of scientific information opinions appear to be based largely on sentiment.

Much more is known about cows. Out of a common pedigree stock of shorthorn cows the breeders by selection have produced in thirty years two distinct strains—the dairy shorthorn and the beef shorthorn. Intensive breeding of these strains has resulted in a remarkable difference in their milking capacity. The dairy strain of shorthorn is capable of yielding five to six gallons of milk a day. The beef strain is capable of yielding less than two gallons of milk a day. So far has this gone that there is a danger that the beef-strain shorthorn will become incapable of yielding enough milk for her own calves. Selective breeding from human beings who hold the view that breast-feeding is no longer necessary may have remote biological effects we do not foresee.

The effects of lactation on the mother's character, temperament, and mental outlook deserve equal consideration with the physical or biological effects. This aspect has received very little study. Modern novelists, eager as they are to explain every conscious and subconscious gesture of their subjects, have hardly touched the theme. Havelock Ellis in his *Psychology of Sex* gives it relatively little notice. Yet the puerperal period is characterized by most interesting and distinctive psychological reactions. The desire for a mother to be left alone to sleep immediately after parturition has both a physical and a psychological value. And afterwards her peculiar jealousies and her craving for individual attention both suggest that she needs a special environment, for psychological as well as physical reasons. Again, if one is to judge by the look of lascivious content that comes over some women's faces as they feed their infants there must be a sense of achievement in the act which has a definite value in maintaining their mental health. These mental states and emotional states of the lying-in woman deserve careful elucidation. Most of those whose profession it is to research or to write are debarred either by their sex or by their sterility from judging aright in this matter. But there are some who are equipped by experience and insight to undertake this work, and I would suggest that they should elucidate these problems for us. For my part I can say only that in most cases I can recognize a woman who has successfully breast-fed an infant, and that I find her to be a saner and a more sensible woman than her sister who has failed to do so.

The Physiology of Lactation

If we are to discuss the causes of failure in breast-feeding it will be well to consider first the mechanism of lactation. New knowledge of the ovarian hormones and the pituitary hormones has filled many gaps in our understanding of this. During pregnancy the ovarian hormones develop and increase the breast tissue and the nipples, which in this way are prepared for lactation. Immediately after parturition the ovarian hormones which inhibit lactation recede, and a pituitary hormone, "prolactin," then comes into play and establishes lactation. Later lactation is maintained by this pituitary hormone secreted under nervous reflex influences. There are at least two of these reflex influences. The first is the frequent emptying of the breast by suckling; the second is a nervous influence engendered in the emotional state of the mother and probably acting through the hypothalamus. Fear, doubt, anxiety, and lack of interest are states of mind which inhibit lactation. I have known a woman to be secreting daily thirty-five to forty ounces of milk for her infant

and yet the yield has fallen suddenly to three or four ounces a day under the influence of a dispute with the father of the infant. In my experience it is emotional disturbances in which the father is concerned that have the greatest inhibiting effect, but over-anxiety about her own ability to feed her infant is almost as harmful. The behaviour of the father during and shortly after the mother's parturition, although often a subject for ridicule, is significant enough to suggest a remnant of some remote biological purpose, and as such it has been studied by the anthropologists. For our purpose it is sufficient to say that in the early stages of lactation he should remain an admiring and protective figure in the background, while his wife receives the ministrations and exhortations of a sagacious and experienced woman.

Studies of mothers' behaviour after parturition indicate that it alters in three distinct stages, each of them with a bearing on lactation. The first stage is one of profound rest and relaxation both for mother and child which may last for twenty-four to forty-eight hours. The child should not need milk or other fluid in that stage, and the mother should be free from meddlesome interference. It is one of the most miraculous of physiological arrangements that lactation is delayed in that early period and afterwards is suddenly established simultaneously with the awakening child's desire for food. The second stage is the establishment of lactation. This may take five or six days, and corresponds to the physiological lying-in period. In this stage the mother will require the help of the modern equivalent of the experienced and sagacious woman. Between these two the establishment of lactation should be a co-operative function, with the mother being allowed to fondle her child as often as she wishes, and without any fixed rules about four-hourly or three-hourly intervals. Another feature of this stage is that the mother requires to be segregated and free from distractions. She should, if possible, be in her own room, concerning herself only with the joys and duties of recovering from her labour and launching her infant on its new mode of existence. Studies of the peculiar jealousy reactions of lying-in women indicate the physiological need for this segregation. If in a surgical ward there are twelve women who have recently had operations for appendicitis we observe no jealousy and no unusual behaviour when a nurse gives particular attention to one of their number, but if there are twelve women in a maternity ward, all recently delivered, and a nurse has to give particular attention to one of them, there is immediately an atmosphere of jealousy which shows itself in demands for bed-pans and for other forms of individual attention. The third stage follows the lying-in period and begins when the mother, now out of bed, takes the feeding and care of her infant into her own hands. In these days its commencement, for many women, corresponds with the day of their discharge from a maternity hospital, abruptly to shoulder the double task of tending to their infants and their homes. Too often the significance of these stages and the need for the mother to pass successfully from one to another is overlooked. Particularly in maternity homes and by maternity nurses are they overlooked. For ten or fourteen days the mother follows the ritual of a hospital bed-patient with her infant presented to her at the ordained intervals, and then on the next day full responsibility is suddenly transferred to her.

There are wide variations in the time and rate at which lactation is established. This is well recognized, but it is not sufficiently understood that lactation may have been prevented for several weeks and yet be re-established. I have seen it re-established eleven weeks after parturition

in a woman who has resorted to bottle-feeding her infant, and who had not previously secreted any breast milk either by suckling or by manual expression.

There is a good deal of misunderstanding concerning the chemical composition of human milk. Fantastic theories of infant feeding have been built on the supposition that it is a food containing fixed and optimal quantities of protein, fat, and sugar. Far from being fixed, there is considerable variation in its composition from one feed to another. The fat content of human milk is commonly 3 per cent. at the first feed of the day, 6 per cent. at the second feed, and between 4 and 5 per cent. at the later feeds. The protein and sugar contents vary also, but to a lesser degree. Even the volume of feeds fluctuates widely under natural conditions. A healthy baby may require and take six ounces at one feed and be satisfied with three ounces at the next. I wish to emphasize these facts, for I shall refer to them again when dealing with the causes of failure in breast-feeding.

Concerning the normal mechanism of lactation there remains one other question. What percentage of women are incapable of breast-feeding because of physical abnormalities? Less than one cow in a thousand fails to lactate. Is the greater number of women who fail due to inherent structural faults or to environmental causes? In many rural districts in this country at least 95 per cent. of women successfully establish their lactation. There is no reason to think that with proper management the proportion of urban women capable of doing this is less than it is among the rural women. An endocrine mechanism which has allowed a woman to conceive and give birth does not at that stage fail to provide for lactation. There remain a few, less than five per cent., in whom it is physically impossible to establish lactation either because of diseased or malformed nipples, or because the infant cannot suck on account of mental defect or of cleft palate or other physical fault. All women who are not handicapped by these physical defects can breast-feed their infants if they desire to do so and if they are not prevented by an unsuitable environment.

The Failure of Lactation

There are those who cannot, those who will not, and those who know not how to breast-feed their infants.

Those who cannot I have already mentioned. They are a small group with physical faults in themselves or in their infants. Those who will not breast-feed their infants I shall not discuss, except to say that often the fault lies not in themselves but in those who advise them. It is due as much to ignorance as to selfishness. It is fostered by a belief that bottle-feeding is adequate and breast-feeding no longer necessary. Modern methods of advertisement are responsible, but the fault lies also in the readiness to receive advice and the desire which lurks in everyone to give advice about health and to appear possessed of occult secrets when giving it. The medical profession itself is not free from the influences of advertisement. No doctor receives a blotter once a week advertising breast milk. Too often do we hear of advice being given from within the profession that an infant must be weaned because the breast milk is not agreeing with it—advice portentously linked with a recommendation of a special brand of infant food, suggesting again the possession of a secret knowledge of the biochemical advantages of that brand of cow's milk over human milk for an infant who later may be found to be suffering from pyloric stenosis. More recently another kind of belief has arisen which encourages the weaning of babies. It is a belief

that has grown out of the publicity about malnutrition and extra nourishment. It was illustrated for me by a young wife living on a completely adequate diet, who told me that she could not breast-feed her infant because she was not receiving "extra nourishment" from a welfare centre. For this reason she had weaned her baby. The need for adequate nourishment of nursing mothers is obviously important, but here was a woman, typical of many in this country, muddle-headed by what she had read. In its effects this ignorance is the same as the selfishness of the young wife who will not feed her infant and explains it by saying that her husband wishes her to go about with him and does not like her to breast-feed—the wife who sacrifices the role of mother to that of mate.

It is those who know not how to breast-feed and fail in spite of their desire to do so who deserve our close consideration in this discussion. This failure ordinarily takes place chiefly in two stages. The first is in the lying-in period, through difficulties in establishing lactation. The second is shortly after the lying-in period, through difficulties in maintaining lactation.

I believe the chief cause of failure in establishing lactation is due to mismanagement. To explain this I can do no better than quote from a letter from Dr. Clifford Grulee: "My personal opinion is that all this talk of the modern woman being unable to nurse her baby is due very largely to the modern nurse's tendency to poke a bottle of milk in the baby's mouth, which of course is due to the indifference of the physician." He goes on to describe that in one of his hospitals they have two services for the newborn. In one, the out-patient service, 95 per cent. of the babies were being breast-fed at the end of the lying-in period. In the other, an in-patient department, less than 50 per cent. were breast-fed. They have been able to raise this to almost 90 per cent. simply by refusing to give the child a bottle in the first week of life. If fluid is required a little is given from time to time from a medicine-dropper. The attitude of the nurse at this stage is of supreme importance. I know of one maternity nurse who, after having been in practice for fifteen years, came to a household in which she was first enthused about breast-feeding and then instructed in overcoming the difficulties of establishing it. Prior to that more than half her babies had been bottle-fed. When seen a few years afterwards she proudly proclaimed that since her sojourn in that house she had never failed to establish breast-feeding. The essence of the faults in most hospitals and nursing homes is that they attempt too much to mechanize breast-feeding. They have institutional rules about the times of feeds, the amount of feeds, the weighing of babies, and the test weighing of feeds, to which they try to fit the patient. If this is not successful anxiety is aroused, and immediately the difficulty of establishing lactation is increased. I heard recently of a woman troubled much by insomnia throughout her pregnancy, who was delivered of her child in the early hours of the morning and then fell into a satisfactory post-partum sleep, to be awakened at seven o'clock to have her teeth brushed. The lying-in room is becoming too much a combination of a sick-room and a flower-decked reception-room. After lactation has started the mother should be allowed to fondle her child as often as possible. There should be no test-weighing of the feeds and no temperature-taking of the infant unless clinical observation indicates the need for it. And there should be no feeding of a healthy newborn baby with a bottle until the first week at least has passed and it is proved that the breast

milk is inadequate. Finally, in houses and hospitals each mother should have her own room. If this can be afforded for the inmates of prisons it should be possible to afford it for the mother of babies. In her own room she would be free not only from the contagion of bacterial disease but also the contagion of desire to bottle-feed which at times spreads from mother to mother in a big ward.

Probably the most important cause of failure to breast-feed among those who desire to do so is the temporary inhibition of lactation which occurs shortly after the lying-in period when the mother returns to her household duties. This is interpreted as a final disappearance of the milk, with the result that she resorts to bottle-feeding. This could be overcome to a large extent by allowing the mother to be out of bed for a few days in the hospital before returning home, and by warning her that the disappearance of the breast-milk will probably last only for a day or two and that it can be restored with perseverance. I shall quote one more example to illustrate the faults of the mechanization of breast-feeding. Some time ago I was summoned to the house of young parents to see a three-months-old infant. The father was a lecturer in science, the mother a recent graduate of a university. The bookcase in unstained oak, the bare off-white walls, and the weekly political journals denoted their type and tastes. She was an earnest woman, breast-feeding her infant and anxious to continue. The complaint was that the child had failed to gain weight for a month and was but little over its birth weight. It was much troubled by frequent green stools and restlessness. I suggested that the child had no disease, but was receiving too little nourishment. This was denied by the mother, who produced figures and charts to show that test weighing had been used for every feed since birth, and that the infant had received the exact physiological amounts of breast milk—so many ounces a day for each pound of its body weight. She quoted authorities at me to prove her point. I persuaded her to discard the test weighing and to feed the infant five or six times a day until he appeared satisfied. In ten days he gained a pound, and there was no more trouble and no more test weighing. This over-mechanization is again seen in the frequent appeal to know whether a baby should be fed at four-hourly or three-hourly intervals. I would submit that the reply to this should be that the mother should cultivate an instinctive recognition of her own baby's needs, that she should come to know when the baby is satisfied, and that she should then choose the times of feeding most suitable to herself and her child. Only in difficulties should professional advice be sought.

Conclusion

It appears that the incidence of breast-feeding is declining. The causes of this are our increasing indifference to the value of breast-feeding and a mismanagement of the mother in the early stages of lactation. The correction of the fault lies mainly in the hands of those who tend and advise the mother in and shortly after her lying-in. Big hospital wards and crowded child welfare centres do not provide an atmosphere which encourages breast-feeding. Better education of doctors and maternity nurses in the care of infants may help to correct the fault; and that the importance of this education is not sufficiently recognized is suggested by the recent authoritative order of the Ministry of Health that panel practitioners attending their refreshing postgraduate courses are not to receive instruction in diseases of infancy or childhood.

THE SPREAD OF STREPTOCOCCAL DISEASE

BY

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Studies in the epidemiology of streptococcal disease are appearing with increasing frequency, and during the past ten years certain new principles have evolved concerning the prevention of these infections. Clinical practice has, however, been slow to apply these important principles. The obstetricians, stimulated by public anxiety concerning puerperal sepsis, have made valuable contributions to these studies, and the story of their success has recently been told by Professor Miles H. Phillips (1938); but the rest of the profession would appear to lag behind both in practice and in teaching. This is unfortunate, because in some quarters the obstetrician's particular interest in puerperal sepsis has given a specialist bias to a problem of general concern. For puerperal sepsis accounts for a small part only of the total morbidity and mortality attributable to *Streptococcus pyogenes*, and it seems not improbable that the practice of obstetrics is, in fact, less affected by the droplet spread of streptococci than are the other branches of clinical medicine and surgery. From the public health point of view it matters little through which portal the streptococcus or its toxins invade the body, and it is not always realized that what is written about the prevention of puerperal fever applies also to all disease spread by droplet contagion. But since puerperal fever has established itself as the classic type of grave streptococcal disease *sine eruptione*, it might be well for us to read again Phillips's historical note and add "*et alia*" after each mention of puerperal fever; for what applies to the classic type is equally applicable to scarlet fever, erysipelas, cellulitis, most wound infections and septicaemia, the bulk of nasopharyngeal and otic suppuration, many pneumonias and, probably, acute rheumatism and acute nephritis.

The crux of the whole matter is a paradox: an isolated case of puerperal fever is in itself evidence of an epidemic. It implies a widespread prevalence of streptococcal disease, and a slight rise in maternal mortality is paralleled by a much greater toll from other streptococcal accidents. If puerperal fever is preventable so are these other accidents, and information as to how they can be controlled is rapidly accumulating. Let us review some of the more recently established facts.

Bacteriology of Streptococcal Infections

Old nomenclatures are a hindrance. Okell's (1932) Milroy Lectures provide a good text. We are now concerned almost entirely with *Streptococcus pyogenes*, for this is the group most commonly pathogenic to man. *Str. viridans* and non-haemolytic organisms, apart from an occasional strain of *Str. pyogenes* which fails to give β haemolysis, are, except when they invade an unusual location such as a previously damaged endocardium or urinary tract, of little significance as disease producers and must be looked upon as part of the normal bacterial flora of man. The part played by anaerobic streptococci is not yet measured, but on clinical grounds it would appear to be of minor importance. The classification of haemolytic streptococci—and for our present purpose it is safe to say that we are almost entirely con-