

## **Infant feeding by prescription / by Henry Ashby.**

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# INFANT FEEDING BY PRESCRIPTION.

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THE HISTORY OF THE

ROYAL SOCIETY OF LONDON

FROM ITS INSTITUTION IN 1660 TO THE PRESENT TIME

BY JOHN VAUGHAN

ESQ. OF THE SOCIETY

## INFANT FEEDING BY PRESCRIPTION.

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DURING the last decade, but especially during the latter half, great advances have been made towards placing infant feeding on a scientific basis. We know from experience that there is neither science nor precision in the ordinary nursery methods; here rule of thumb reigns supreme. It is the nurse or some intelligent friend who prescribes the particular form of bottled or tinned food, when it is found that "fresh milk doesn't agree." Certainly there is no lack of variety from which to choose, for the manufacture of infant foods is a very profitable business, and the maker is not usually bashful in bringing his wares under the notice of the public. He is, I am ashamed to say, aided and abetted by the analytical chemist and members of our own profession, who give him extravagantly-worded testimonials with which to entrap the ignorant. Thus I often see a testimonial given by a medical knight to the effect that a certain food is "admirably adapted to the wants of infants and young children," side by side with a certificate of an analytical chemist who certifies this food to consist of over 75 per cent of starch!

Now, I have no wish to decry all forms of preserved milk or tinned foods for infants' use; in the present state of dairying in this country we cannot do without them, and I do not doubt that many of them are carefully prepared, and are useful as temporary resorts; but no one of them can take the place of the mother's breast or of fresh, clean cow's milk, properly modified and prepared. But the majority of the public accept the *ipse dixit* of the manufacturer and the testimonial-monger as gospel, and the food is taken for many months together, until failing health or a severe illness calls attention to the fact that a perhaps irretrievable error has been made.

Let us turn from these unscientific methods, and see what has been done abroad to place infant feeding upon a safer and more exact basis. In the first place, it is necessary to study the chemistry and composition of breast milk, and its variations in health and disease. It is necessary to note the effects of diet and also mental disturbance on the composition



of breast milk, and find out if certain symptoms of dyspepsia in infants are due to an undue preponderance of some of the milk constituents.

Much good work has been done in this direction in the United States, especially by Rotch, Harrington, Adriance, and Woodhead. Thus we know that a milk rich in fats and proteids is very likely to give rise to vomiting and diarrhœa, with green and curdy stools. It must be within the experience of most practitioners, that sometimes a newly-born infant taking the breast suffers severely from vomiting and diarrhœa, which may prove fatal, and which is entirely due to the exceptional richness of the colostrum milk. Draw off the breast milk and dilute it, or withhold the breast for a while, and everything goes well again. In most of such cases it is unnecessary to wean. We know also that too high feeding on the part of the mother is apt to give rise to rich milk, and consequently causes dyspepsia, colic, and diarrhœa in the infant.

A milk poor in fat and proteids is apt to give rise to anæmia and constipation in the infant.

A careful study of the composition of human breast milk and the effect of variations in its composition on the health of the infant, is not only of importance in the treatment of infants at the breast, but it has paved the way to scientific infant feeding.

It is not necessary to say that for artificial feeding the only substitute allowable is fresh milk from healthy cows, modified according to circumstances, and consumed within twenty-four hours of the milking. One great difficulty is to obtain a fresh, safe, clean milk. "Milk," says a recent American writer, "as usually sold to-day, is about as suitable a vehicle for the transmission of disease as it was before science revealed the dangers that may lurk in it. Science in the dairy has stopped at cheapening and improving the manufacture of butter and cheese. It has not been, with rare exceptions, extended to improving the milk production either of the farm or for the cities. The milk supply of Boston comes from nobody knows where, and very largely is outside the control of our Health Boards, except as to its solid contents and gross adulteration." We all know what is true of Boston is true of Manchester and other large cities.

So keen has this difficulty been felt in America that special milk establishments have been started, ready to supply a sound, safe milk or cream of definite and constant composition, and also to modify the composition of the constituents according to the needs of the infant as directed by the attending physician. In this matter we have fallen a long way behind the times, and have a good deal of leeway to make up, before we can rival our kin across the sea or some of our European neighbours.



Let us, for instance, note what the Walker-Gordon milk establishments have done in Boston, New York, Baltimore, Chicago, and Montreal. The company are their own cowkeepers, deeming it of the first importance to be in charge of the milk from production to consumption, from first to last. Their first care is to produce a "safe" milk, that is, to be certain the cows are free from infectious disease, and to exercise the most scrupulous care that milk is not in any way contaminated in the byre or in the dairy. In their byres each cow has a separate stall and 1,500 cubic feet of air space, whilst adjoining the byres is an exercising ground, where the cows are turned out for fresh air when the weather permits. The feeding is conducted on scientific principles, a suitable proportion of meal, oats, and beetroot, or other fresh food, being used. The milk is "separated" at once into a 16 per cent cream and skim milk, cooled by ice, and sent off without delay to their city laboratory. Here the prescriptions given by the attending physician are made up by mixing cream, separated milk, and a solution of milk sugar; the modified milk placed in feeding bottles, stoppered with cotton wool, and sent out in suitable baskets by the company's vans.

The prescription form is here appended, ready for the percentage composition to be filled in by the doctor, as well as the directions:—

**THE WALKER-GORDON LABORATORY,**  
203, Clarendon Street, Boston.

	Per cent.		Remarks.
R			
Fat ... ..			Number of feedings .....
Milk-Sugar ... ..			Amount at each feeding .....
Albuminoids ... ..			Infant's age .....
Mineral Matter ... ..			Infant's weight ... ..
Total Solids ... ..			Alkalinity ... ..%
Water ... ..			Heat at ... ..°F.
	100.00		

Ordered for \_\_\_\_\_

Date,

\_\_\_\_\_ 189

Signature,

But little reliance is placed by this company upon sterilisation, as they believe by long heating the milk, changes take place in the fat and proteids, which are the reverse of an advantage to the infant. They



only sterilise in case the milk has to be sent long distances, or has to accompany the consumer on board ship. They prefer Pasteurising and preserving on ice, or, indeed, not heating at all, trusting to ice for its preservation for 24 hours. But every possible precaution is taken to keep only healthy cows, and to keep the milk free from contamination with micro-organisms.

Another good feature about the company is that they themselves do not advise on baby feeding, either directly or by advertisements. They do not prescribe, they only make up prescriptions for physicians. The form given above must be filled up and signed by the attending physician before the modified milk is furnished to the infant's friends.

It is not necessary for me to point out what a great boon such a milk establishment is to the physician. No more tinned or bottled food, no nursery blunders or carelessness in the preparation of the food, the medical attendant can rely on the safety of the milk, and, above all, he knows exactly the composition of the food the infant is taking, and if necessary he can strengthen it, weaken it, and increase or lessen the amount of proteids, fat, or sugar, by altering the prescription. No rule of thumb, everything is done exactly by trained and scientific workers.

There is a great deal yet to be learnt concerning the vagaries of the infant stomach, but we shall never know much more than we know at present unless we proceed upon scientific lines, and have more exact methods than we have hitherto possessed. In the modification of milk, as just described, we have an "instrument of precision" which we can bring to bear on the difficult task of finding a suitable food for all sorts and conditions of infants.

Dr. T. Rotch, of Boston, has been the pioneer in the work of modifying milk, and under his direction the Walker-Gordon Milk Company have carried out the work to a practical success.

In a recent paper Dr. Rotch gives some of his experiences of using modified milk in the dyspepsia of infants. Thus one of the commoner difficulties with infants is the difficulty of digesting the proteids of milk. There is colic, flatulence, green curdy stools, and very likely vomiting. In these cases, he says, he has had the most success, not in predigesting the proteids, but by reducing them to a minimum, and gradually increasing their amount as digestion improves. Thus he will prescribe a milk containing only 0·25 per cent of proteids, and gradually increase up to 1 or 1·5 per cent.

In summer diarrhoea it is the usual plan to stop all milk food for a while. He has, however, found that in this troublesome complaint, milk from the Walker-Gordon laboratory agrees very well if the fat is kept down to 1·5 per cent, sugar 4—5 per cent, and proteids ·25 to ·75 per cent.

It is not necessary to point out how useful modified milk is in feeding infants who are born prematurely, as in these cases it is necessary to keep the proteids low.

With such resources as I have described to fall back upon, it will be possible for the medical man to do more and more without the wet nurse. It is doubtful if cow's milk can be modified so to make it exactly resemble mother's milk. The proteids of cow's milk differ unquestionably from the proteids of woman's, not only in quantity but also in quality. But there is this undoubted advantage, that in the milk laboratory the percentage composition of the cow's milk can be altered to suit the idiosyncrasies of the infant's digestion, while we have far less control over the percentage composition of the breast milk of the mother or wet nurse.

I feel sure that the scientific modification of cow's milk will place in our hands means of dealing with the most serious of infantile ailments such as we have never yet possessed, and I would confidently predict a great future for it



I do not know if I have ever before seen  
this kind of thing, but it is very  
interesting to me. It is a very  
interesting thing to see.

When we first saw it, we were  
very much surprised to find  
it was so common.

It is a very common thing to see  
in the mountains of the West,  
and it is very common to see  
it in the mountains of the West.

The first time I saw it was  
in the mountains of the West,  
and it was very common to see  
it in the mountains of the West.

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