

## **Health in infancy / by T. M. Allison.**

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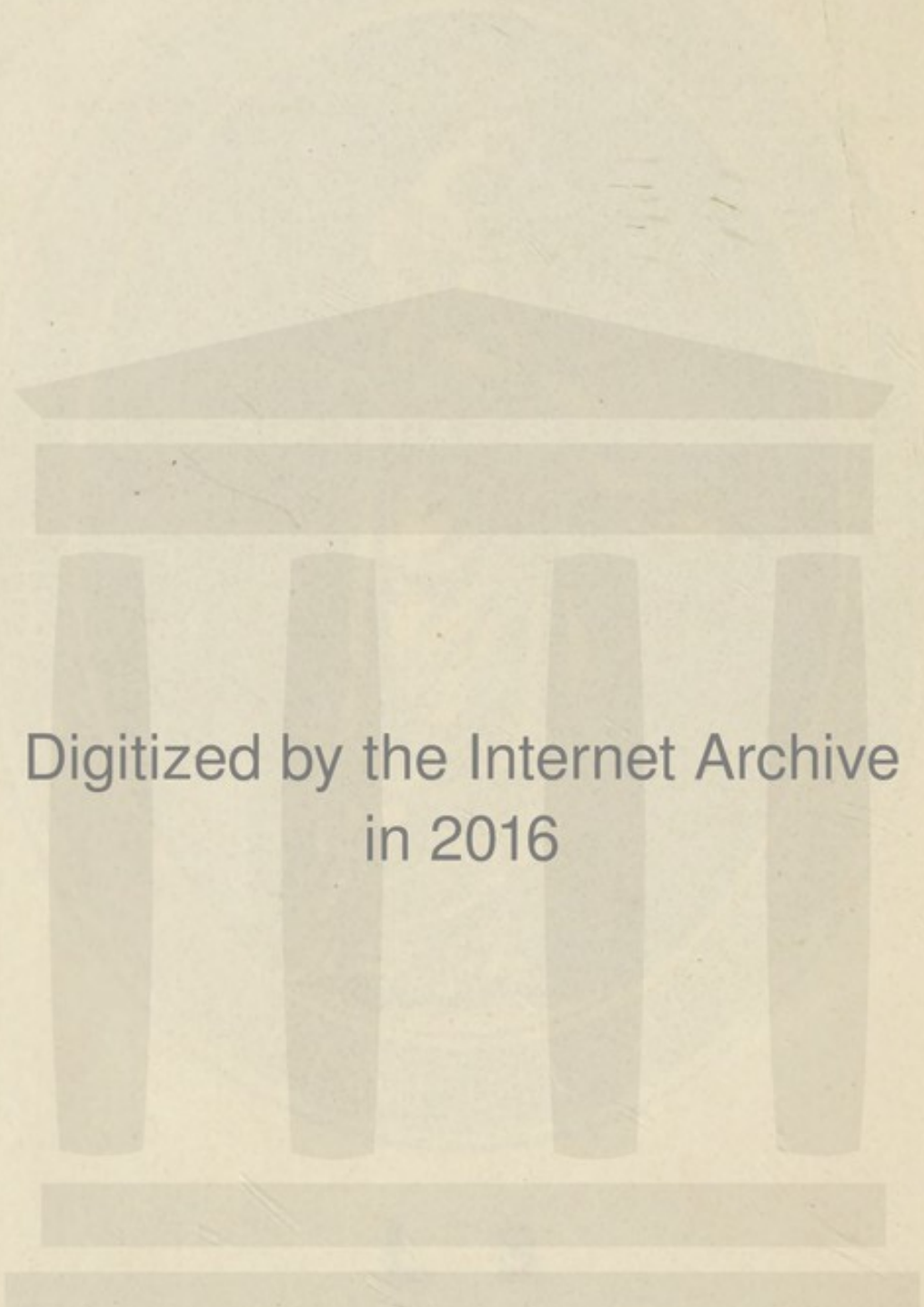
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# HEALTH IN INFANCY.

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“For the third week in succession Liverpool has the highest death-  
“rate in the kingdom. There is a general agreement in Liverpool  
“that improper feeding by mothers is the reason of the excessive  
“mortality there.”—*Daily Paper*, 18th August, 1904.

“THEY HAD SEEN MANY WHITE MEN :  
THEY HAD NEVER SEEN ONE AFRAID.”



THE EMPIRE RESTS ON THE INFANT.



# HEALTH IN INFANCY.

BY

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## INTRODUCTION.

Let us begin with a question. What is health? Is it not the ideal, the desirable condition of life? And what is life? To whom shall we turn for answer? If we ask the wisdom of the past; if we inquire of the builders of Babylon, or of those who laid the foundations and coping stones of the Pyramids; if we question those who possessed the most perfect form of physical life—the Athenians; if we speak the children of the Seven Hills, the soldierly and colonising Romans—what would they say? The past would answer, We cannot tell. If we ask the present—the present, with its boastful knowledge, its progress in arts, in mechanics, in science, in everything but reverence, even its confidence fails here—What is life? and the present answers, We do not know. What the essential nature of life is even the nineteenth and twentieth centuries cannot tell.

But we may define where we cannot analyse, and the following definition will perhaps serve us here. Life is a force, a subtle and unknown force, the highest force with which we are acquainted—the force which can only manifest itself through the cells, those protoplasmic units which build up the plant and the animal.

And what is health? Health is the proper and pleasurable condition of being, the right swing, as it were, of the pendulum of existence. Ideal health is perfect life acting through perfect

protoplasm. Practically, health may be considered as life at its happiest and easiest.

And to attain and to preserve this condition is worthy of our best efforts and attention, and I would like to point out what seems to me the best test of this condition of health.

THE TEST OF HEALTH.—If, at an examination, the question were asked, “What is the best test of good health?” I think the answer generally would be, “Strength.” With that answer I beg to differ. Strength is not the best test of constitution, or health. In my judgment “staying power” is a better test than “strength.” One soldier is stronger than his comrade, strength being dependent on bulk, weight, or muscle, but at the end of three days’ march the strong man breaks down, and his mate has not turned a hair. The first man has strength, the second staying power, and the second is much the more useful man of the two. Two students, or two navvies, of equal bulk, weight, and size, work side by side; one tires sooner than the other; he has less staying power, he has less life or weaker protoplasm than the other, and is handicapped proportionately. Staying power is, therefore, a most desirable possession; and, as I believe it greatly depends upon proper conditions, especially in infancy, I would ask attention to these conditions, and to those other influences which mould the individual, and make or mar the race.

# HEALTH IN INFANCY.

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SUBSTANCE OF A PAPER READ BEFORE THE  
NEWCASTLE CLINICAL SOCIETY, MARCH 6TH, 1902.

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The superstructure of health is founded on inheritance, is built by nutrition, is affected by surroundings, and is kept in repair by habits.

Inheritance affects us more or less throughout life, though perhaps more mentally than physically. But other things being equal, the son of the strong is strong; the son of the weak, weak; the long-lived families have long-lived children, and *vice-versa*. To the infant, therefore, inheritance of sound health from its parents is of the greatest importance. Happy, indeed, is the infant whose parents are healthy, for it is easy to build a strong constitution on a sound basis. But, on the other hand, the building we have to erect has life in itself—its bricks or cells are each alive,—and even if the inheritance be a poor one, much may be done to rear a weakly baby into a sturdy adult.

Nutrition affects us most in infancy, surroundings in childhood and youth, and habits most in adult life.

It is with nutrition in infancy that my paper mainly deals, but I have ventured to widen the scope to health in infancy, with nutrition as the

most important element. In brief, in my opinion, nutrition in infancy is the most important factor in the physical health of the unit, and has the most potent influence on the physical well-being of the nation at large.

An infant is born healthy, its health being at that moment due to inheritance, a not unimportant influence being the mental and physical condition of the mother during pregnancy.

On what influences does its well-being now depend? First and chiefly, on nutrition. Secondly, on surroundings and treatment.

Taking the latter first. The surroundings of an infant with respect to fresh air and sunlight are important, though not nearly so as in childhood, when an open-air life is absolutely necessary to a sound constitution. Still an infant ought to be out every day if possible, whilst the bedroom should admit fresh air at the top of the window day and night. Sunlight is as good for the infant as for its father, and resting in a nurse's arms and deriving warmth from her body is better than solitary state in a perambulator. A mother's arms are better than a Prince's cot.

The treatment with regard to clothing and cleanliness is also important. The clothing should be warm, but light and loose, and safety-pins only should be used about a child. Most children are over-clothed, and their movements are too restricted, as witness their efforts to throw off bed clothes, and their delight in getting their shoes and garments off. Bare feet tend to keep the feet undeformed, and, as an infant's temperature



No. 1.

A Country Baby, properly fed.  
7½ months old.

is higher, and its processes more active than an adult's, light garments are a necessity, and an uncovered baby seldom or never catches cold.

With regard to cleanliness. A daily bath with unirritating soap, and careful drying and dusting are indispensable, and the room in which the tubbing is done should be kept at a proper heat. All irritating discharges should be quickly removed; and it should be remembered that a baby's education commences at birth, and that habits are formed from the first. At a very early date an infant can be trained to use small utensils rather than soil napkins.

And one habit should never be neglected—a child should be taught from the first to breathe through the nose. It should be spared the dangers and discomforts which arise from mouth-breathing, and its mouth should be gently closed whenever observed open. If persistent, medical advice should be sought, and tonsils, adenoids, &c., should be put right. Every male child, on moral and medical grounds, should be circumcised; and it would be a good practice if every child, at the end of the first fortnight, were examined medically for rupture, or phimosis. It is a pity the public don't go oftener to their medical men for advice, rather than for treatment.

A good plan is to have all infants rubbed daily with olive oil, but especially if thin and at all constipated. The less medicine a child has the better; and the old cruel superstition of giving castor oil, sugared water, &c., shortly after birth, ought strictly to be forbidden. It

only gripes the little thing, and disturbs the mother when she most needs rest. The nurse may be an old nurse, but she is not old enough to teach nature. The first milk is the best aperient.

For constipation, generally induced by the big curds of cow's milk, water to liquify the contents of the bowels, barley water added to the milk, massage of stomach with olive oil, glycerine injections, and fig syrup or magnesia are best, whilst for what I may term the "physiological constipation" of regularly fed infants at the breast, who often move only every other day, nothing is required, so long as the stool is soft and the effort easy. In properly fed cases the assimilation approximates the income and expenditure and sips of boiled (cooled) water will tend to keep the stools fluid. Water before or after the breast is good practice. Many stools (diarrhœa) mean too many or improper meals, and are accompanied by pain, crying, swollen abdomen, and green or curdy stools. Such stools require a single dose of castor oil, to get rid of the irritant, and careful regulation of the food. If choppy, the milk curds are not being digested, and reduction of the quantity of milk, made up with cream instead, is advisable. Lime water is also astringent, and helps to break up the curd, which is the bane of infantile food. Partial or predigestion is sometimes required. In adult life, the medical equivalent of "know thyself" is, watch the urine; in babyhood, the equivalent

of "know thy child" is, watch the stools. When they are yellow, soft, and easy, all is well.

Dumb teats, now in common use, are a filthy abomination, which harden the gums and make teething more difficult. They are a silly sedative, used by selfishness and ignorance to still crying. An infant cries for three causes—hunger, pain, and temper. The first is easily satisfied when healthy, but when a child's stomach and bowels are irritable from vomiting or diarrhœa, food ought to be withheld, and the stomach soothed with water, weak beef tea, or other bland fluid. No milk, except at the proper intervals, ought to be given. The cause of pain, usually from indigestion, injury, or pin point, should be sought for, not masked. And temper is best treated by firm kindness—a child knows from the first who is master. If a child be given food simply because it cries it becomes self-willed; if it waits the proper time, self-controlled. You form character, as well as constitution, in the cradle.

But now with respect to the chief element for good or evil in infancy, —the question of nutrition.

I may say at once that, however big, fat, or apparently healthy an infant may appear, I do not think there has ever been, or will be, a woman distinguished among women for beauty, or a man distinguished among men for staying power, who was not naturally fed in infancy. In other words, adults are never physically what they ought to be unless they have been breast-fed children. In

short, my paper turns chiefly on the question of natural *versus* artificial feeding.

The reasons for this contention are as follows:—

1. Breast feeding is the only natural method.
2. There is no equivalent or proper substitute for mother's milk.
3. Medical experience.
4. The teaching of the animal kingdom.

1. One need not labour the first point—that breast feeding is the only natural method. It is self-evident, and has these unique advantages. The food is absolutely suited in every way to the requirements of the baby. It is a perfect food. It is aseptic (air and germs being excluded) by passing direct from mother to child. And it is vital, the milk being at body heat, and the milk cells being living protoplasm. As the red cell carries oxygen, the milk cell carries life. And for life, there can be no artificial substitute.

2. There is no proper substitute. Take a child a week old; it is given cow's milk, diluted with two parts of water. Take first the cow's milk. It is no longer vital, cooling has changed its living protoplasm into dead albumen. And you cannot imitate life. A pail-fed calf is never so vigorous as one that suckles its mother. Again, the milk is exposed to air and germs, if not to dust and dirt in its passage from the dairy to the infant. It is no longer aseptic, and it may well be in addition tubercular, the latter germs being encouraged to grow by the indigestion and

debility, which the cow's curd (much larger and more indigestible than human curd) tends to set up. The chemical and mechanical composition of cow's milk is also different. It is suited to the calf's, not the infant's stomach. Its curd probably kills more children under two years of age than disease, to which it also certainly lays them open ; and one can hardly save a child with summer diarrhœa if kept on cow's milk, the pain and irritation set up being so great.

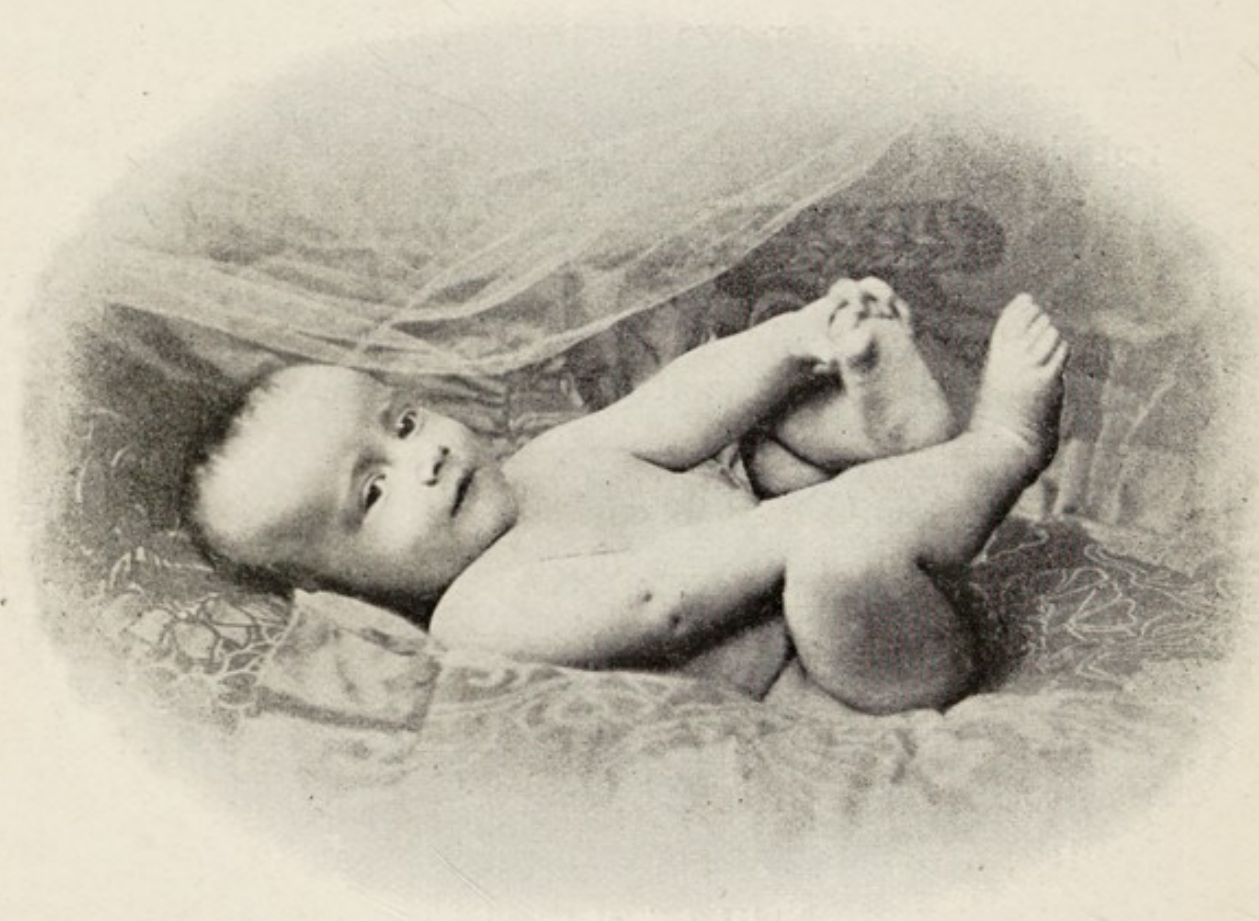
Lastly, with respect to the two-thirds of water with which the milk is diluted in the early months. It should be remembered that this is superfluous, and that, consequently, a bottle-fed child is constantly wet, that its stomach, heart, and kidneys have to turn over thrice the bulk to extract a third poorer nutriment, when compared with a child fed on mother's milk. The latter is practically all nutriment. No wonder indigestion is a national complaint, when so many opportunities are given to lay its foundations in infancy. (*See Photo. No. 3.*)

3. With respect to medical experience. The death-rate among children under two years of age is a disgrace to humanity and to civilization. And artificial feeding has not a little to do with this mortality. Probably two to three bottle fed children die to one that is brought up naturally. I have attended some 2,000 children, and I venture to assert that bad feeding in infancy has directly to do with the death of many, and indirectly contributes to death ascribed to disease.

Time after time I have been struck with the staying power and disease-resisting strength of breast-fed children, and by the reverse in bottle-fed babies. (*See Photo. No. 2.*) And I commend the point as an element in prognosis when dealing with serious cases. I always feel more confidence when dealing with a breast-fed child. Whenever a man says he has never had a doctor in his life till accident occurs or age comes on, it will almost invariably be found that that man was a breast-fed child, and often either a countryman or the son or grandson of the country. (*See Photo. No. 1*) In my opinion the personal element, the resisting power of the unit, is certainly greatest in men (as in animals) who are naturally fed. (*See Photos. Nos. 4 and 5.*)

4. Take the teaching of the animal kingdom. Have you ever heard of a bottle-fed horse winning the Derby or Oaks? What happens if a mare dies?—the foal almost invariably follows. It can only with the greatest care be reared on cow's milk. And if you do it is rickety, pot-bellied, with staring coat and sluggish eye, and not worth more than two-thirds the money that its full brother—naturally fed—was worth at the same age the previous year. A farmer, spontaneously, never attempts to bring up a foal by hand; and a breeder of dogs is very unhappy if his pups have no mother. But it doesn't seem to matter about the child. (*See Photos. Nos. 6 and 7.*)

If you look at the examples of foals and calves shown—one of which has run with its mother,



No. 2.

A Town Baby, properly fed.  $7\frac{1}{2}$  months old.



No. 3.

A Slum Baby, bottle fed, dying of improper feeding.  
Mother had heart disease, father a cripple.

and the other has been pail-fed,—you will see the first has a coat like a deer, an eye bright and alert, and it stands on its feet with vigour and verve, whilst its pail-fed friend is sluggish, rough coated, and blown out. (*See Photos. Nos. 8 and 9.*)

The flesh of a naturally fed calf is more “vealy” than that of a pail-fed animal. The latter ripens faster, and is more “beefy” at two years of age. But that which ripens slowly lasts better, and lives longer than that which ripens readily. And as it is with the animal, so is it with man.

A pet lamb may be fatter than the one in the field, but when several months old the pet lamb is “fuzzy,” and its flesh has not the solidity and quality of the other. An artificially-fed pheasant has not the taste of the natural bird.

Why is the horse (a much more delicate animal than the cow) so little subject to tuberculosis? Because he is naturally fed, has better sanitary surroundings, and has more sunlight and fresh air. Mr. Dotchin, the Veterinary Surgeon of the Elswick Battery, tells me that he has never found a trace of tubercle in the Africander ox—a naturally fed animal with good climatic surroundings. British cattle, on the other hand, are steeped in tubercle, seven out of ten being affected. And I would like to suggest that milk cows should be bred only from tested, non-tubercular parents, and should all be brought up naturally, *i.e.* with milk “warm from the cow,” to ensure resistance of constitution.

Ordinary beasts for eating could be brought up in the ordinary way, as with them beefy flesh is desirable. The practice of allowing shorthorn and other prize calves to run not with one, but with two mothers, is known to all breeders of note, and such calves take a great deal of beating in the show field.

Look again at the painful question of teeth, and its influence on civil and military life. The native races have good teeth, as had our grandfathers, who were naturally fed. The death-dealing bottle is a creation of the last fifty years, and it is during that time that the dentist has become even busier than the doctor.

The following common case of a family of three generations bears on the point:—(1) The grandfather (the grand old type of an English gentleman), with a sound constitution, and good teeth till old age, but with a delicate wife, who is unable to nurse her children. (2) The son or daughter, with regular features and poor complexion, has lessened vitality and modern teeth. (3) The grandchildren, fine babies at birth, artificially fed, and given every substitute that money can buy. They are dreamy children, who read rather than play, and at three years of age the milk teeth will all be gone, or going, whilst a naturally fed child of that age will have every tooth sound. And what applies to teeth applies generally.

In my opinion artificial feeding, on both sides, will kill off any family in four generations. And as the birth-rate is steadily decreasing, if quality

goes down as well as quantity, the outlook is not an enviable one.

With respect to small families, there is this grave practical fact to face. If it consists of one or two, look at the risk of the family dying out. There are few families, however healthy, without vacant chairs. And if originally there be only one or two children, weakened by bottle-feeding from the same selfishness that restricts the numbers, there is a much greater chance of death taking the young, and if they survive infancy to die out before twenty, when a childless old age awaits the parents, and the selfishness of their youth is repaid by the desolation of their autumn and winter. The prizes of the future will be to the sons of the unselfish.

Hence I would ask—that as the public health has been committed to the charge of the medical profession, and as it ought to be the highest public ideal to produce a healthy race—I would ask those who agree with me to make their influence felt in persuading mothers to nurse their children to the mutual benefit of both; and I would ask those who differ from me to reconsider the question in the light of infant mortality, and of the undoubted decrease of strength and staying power amongst the individuals of whom the race is made up. There is no doubt of this that the British compare very unfavourably with the Jews, who live amongst them in the same climate, and under similar conditions. But the Jews nurse their infants and feed their children most carefully, whilst their inheritance is not



No 4.

A Town Workman's Child, aged 1 year, naturally fed,  
and brought up in same house as No. 5.



No. 5.

A Town Bottle-fed Child, aged 2 years,  
from same house as No. 4.

tarnished to the same extent as ours by parental excess. One special providence that guards the Jew is, that there are mothers and not feeding bottles in Israel. And the health and stability of any nation depends, not upon the intelligence or education of its men, but upon the nursing power of its women.

There are, of course, mothers who cannot nurse. A neurotic or anæmic girl is not likely to be a good mother. But there are more mothers who could nurse, if encouraged, than is generally thought. I know at present a thin, asthmatical girl who is nursing her baby, and both are doing well. And it is very striking if a woman nurse how it improves her health and physique. If delicate, and only able to partially nurse, a mother should always be encouraged to do so. The foolish fear that some nurses have of the one food disagreeing with the other is absolutely unfounded. And apart from the question of health is the question of cost. A prepared food is a great cost, and at night the trouble of preparing food is great and trying. And if a mother can nurse at all, she had best reserve the supply for night. To aid secretion there is nothing better than milk, which the mother can drink *ad lib.*, preferably flavoured with cocoa or coffee, diluted with half hot water, &c. Malt liquors are not better, if as good, as cocoa made with milk, and malt extract may be given to get rid of the alcohol, which is not desirable for a child. Good food, and plenty of it, freedom from worry, and plenty of fresh air

are also required. A mother's first duty is to her child. There are several drugs which, given under medical direction, are also very useful in helping a nursing mother.

On the other hand, there are dozens of mothers who can, and won't nurse. The mother wishes to be free for pleasure and gaiety, the medical man has no views one way or the other, and the nurse likes to talk big about "windy-milk," and will take no trouble with the nipples or the baby. Some nurses' sole idea is to profess knowledge where they are absolutely ignorant, to appear wiser than nature or doctor, and to impress the patient with hospital stories that were best unsaid. And an inexperienced mother with her first baby is often imposed upon, and instances are not uncommon where the mother was anxious to nurse, but was persuaded to the contrary by the nurse. The foolish idea of spoiling the figure is rubbish, and I have never known a woman who regretted having done her duty.

But when, under these circumstances or misapprehensions, that death-trap and health-wrecker—the bottle—is substituted for the mother, one of three things happens—the child dies from the slow torture of chronic indigestion or the merciful suddenness of convulsions; or it grows up thin and pinched, with starved bones and muscles; or it is fat and over-ripened, with flabby muscles, large head, and big bones that takes on ricketty bends. The bottle and artificial foods are as deadly in early, as the bottle and alcohol are in later life.



No. 6.

A Naturally-fed Foal, from same farm as No. 7.



No. 7.

A Pail-fed Foal (hand reared), on same  
farm as No. 6.

But in the genuine cases of inability to nurse, there is first a substitute, *i.e.* a wet nurse ; secondly, a suckling goat ; and thirdly, cow's milk.

With regard to a wet nurse. Many people object to them. They have no objection to the food of the calf and its indigestible curds, but they object to healthy human milk from another source. They deny it themselves and reject it from others, and the children die. There is a public man who has an only child. His wife was unable to nurse, and baby after baby faded and died on the best artificial foods. At length a wet nurse was got to save the last. It is the only survivor. One case I well remember where artificial feeding had gone on for some months. The child was almost a skeleton, peevish, and crying with constant indigestion. A wet nurse was suggested. The first meal was vomited, but after that all went well, and the result was as satisfactory as it was gratifying.

A suckled goat has been known to rear a wonderfully healthy child, but the opportunities are few for obtaining either a goat or its milk, which suits better than cow's milk, and is free from all fear of tuberculosis. The same remark applies to ass' milk.

But where these are unavailable we must fall back on sterilised cow's milk. And mixed with barley to open, or lime water to restrain, as the case requires, it is preferable to the foods that now make the owners thrive on maternal failure. After seven months, the addition of barley

(Robinson's or other good grain) or oatmeal flour to thicken the milk, is better than trusting to a food the constituents of which are unknown. A pinch of salt or bicarbonate of soda is a good addition, and sugar of milk should always be used in preference to cane or beet sugar.

The method of feeding is also most important. A cup and spoon is better than any bottle, with its septic teat and tubes, and the soured curds left in flakes from the last meal, and lurking in the bottle corners and in the darkness of the india rubber. If a bottle be used at all, Allan and Hanbury's is best, as it has only a teat and no tubes, which should never be used as they are difficult if not impossible to clean.

It is only with extreme care, and among the intelligent, that bottles are rendered harmless, especially those with tubes, while those with teats require holding in the hand, and that is as troublesome as the cup and spoon method, which has these advantages: The cup is easily sterilised, and the spoon prevents the sucking in of air, and simulates the mouthfuls of adult life, whilst there is no overfeeding on the part of the child, such as exists with the bottle, unless this be prevented by accurate measurement, and even that cannot prevent gulping of the contents. Among the poor and uneducated the bottles and tubes are often filthy in the extreme, an old ginger beer bottle, with a hole bored or burnt in a cork, being a common sight.

If part nursing, which should always be encouraged, be taking place, the cup and spoon



No. 8.

A Calf that has run with its mother, *i.e.* naturally fed,  
on same farm as No. 9.



No. 9.

The usual Pail-fed Calf, from same farm as No. 8

method should always be used, as otherwise the child prefers the easily drawn teat of the bottle, and refuses to draw the breast.

In all cases, feeding by the clock should be practised. Eight out of ten infants (naturally or artificially nourished) are overfed.

The child should be nursed as soon as possible after birth, and should get what it can the first few days, say every two hours. It should not be given an aperient, but a little cream and warmed water, or milk diluted with two parts of boiled water, may be employed unsweetened, but usually it is better without anything. Babies usually decline in weight the first few days, but this is better than setting up indigestion.

After the first week a child should be nursed as follows :—

During the first month, every 2 hours, with  $2\frac{1}{2}$  ozs. of food

„	„	second	„	„	$2\frac{1}{2}$	„	„	$4\frac{1}{2}$	„	„
„	„	third	„	„	3	„	„	5	„	„
„	„	fourth	„	„	$3\frac{1}{2}$	„	}	6 to 7	„	„
„	„	fifth	„	„	4	„				
„	„	sixth	„	„	$4\frac{1}{2}$	„				
„	„	seventh, eighth, & ninth months, every 5 hours								

If the child vomits reduce the quantity, or lengthen the interval between the meals.

When the infant attains the age of seven months, a meal of milk may be missed, and a meal of sterilised milk (with half barley water) be given out of a cup. Or strained oatmeal gruel or soup may be used, and a rusk, bread crust, digestive biscuit, or piece of toast may be allowed. These and boiley (boiled biscuit or bread in

milk) should not be given before this age, as under seven months starchy food cannot be digested properly, the salivary glands not being sufficiently developed. The crust may be given (following nature's hint) when the teeth are coming or have come. An occasional teaspoonful of cream, a little fresh butter, or other fatty food is also now desirable; and if artificial food be employed a little sweet cream ought at any time to be beneficial, as many of the artificial foods are deficient in fat-forming ingredients. As the child grows older increase the meals of gruel, &c., at the expense of the natural nutriment, and decrease also the number of meals in the twenty-four hours. Wean the child when nine or ten months old.

No tea, cakes, pastry, chocolate, or sweets should be given till a child is five or six years old. The best investment it can have is a sound digestion. Sweets destroy the teeth—the first line of defence—and tea and pastry do the rest. If a child is fed with proper food at stated times it sleeps soundly, or if awake gives little trouble—it is essentially a good-tempered child.

In my opinion stimulating animal extracts, such as beef tea or bovril, are unnecessary, and should be reserved for later life. But they are most desirable as stimulents in severe disease, and in diarrhœa should be substituted for milk, as the diarrhœa of beef tea is easily controlled by medicine, whilst the curds of milk keep up pain and discharge, and medicines often fail to check it.

Finally, in weaning a child when nine or ten months old, for the sake of both mother and infant, the artificial food should be substituted for the natural, meal by meal, say over the course of a month or less. This saves abscess on the one hand and indigestion on the other.

If, then, an infant's physical inheritance be sound, if it be naturally fed, if its food be properly digested, its sleep refreshing, and due care be taken in clothing and cleanliness, there can be nothing but the incidence of illness to prevent it becoming a healthy and happy child. And such a child will acquire that peculiar peach-like bloom of complexion which is too rarely seen, and which is not only a mark of great physical beauty, but of sound physical health, and which persists from the cradle to the grave, and is as much in evidence in old age as in the balmy days of youth.

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## SUMMARY.

Health in infancy depends upon :—

1. A sound inheritance.
2. Natural feeding at regular intervals.
3. Cleanliness, light clothing, fresh air, and sunshine.

## RULES.

1. Don't give an aperient at birth.
2. Don't drink beer or stout. Take plenty of milk, malt extract, and gruel.
3. Don't give anything but mother's milk the first seven months.
4. Don't use artificial foods unless absolutely compelled.
5. Don't be afraid of part nursing and part feeding from a cup and spoon.
6. Don't feed except by the clock, and don't give food between meals.
7. Don't give a child alcohol or arrowroot, boiley or beer, coffee or condensed milk, medicines or meat, tea or teething powder, spirits or soothing syrups.
8. Don't use bottles or comforters. Don't overfeed, overclothe, or overcoddle.
9. Don't scald with hot food or bath, nor with wet or soiled napkins. Don't use napkins twice, and don't wash them with soda or dry soap. Don't use flannelette, and don't let the child catch fire.
10. Don't let a child sleep with its parents, with its mouth open, or with crumpled ear, nightdress, or bed-clothes.
11. Don't forget to give a child daylight and sunlight, and fresh air day and night.
12. Don't wean abruptly, and avoid hot weather for doing so.

## ALPHABETICAL REFERENCE.

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*An Alphabetical Reference is added in order that this book may be rendered more generally useful, and that detailed information may be available for consultation on special points.*

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**Air.**—After the first fortnight an infant ought to have a daily airing in its nurse's arms. Afterwards let it sleep in the air in its pram. Make the air of bedroom sweet by keeping the upper sash of window an inch or two open day and night: keep the door shut and the chimney open. Air before noon is good: air before breakfast is better. Avoid keen winds, thaws, and intense cold.

**Alcohol** (ale, beer, stout, and spirits) should not be used by a nursing mother. Milk, flavoured by cocoa or coffee, is far better; and malt extract is also better than stout, it being without the danger of setting up drinking habits in both mother and child. Gruel, beef tea, bovril, half milk and hot water are also good.

**Barley-water** can be often used after the first month instead of boiled water—one part to one of milk and one of boiled water up to the fourth month; two parts barley-water to one of milk up to the sixth month; half-and-half afterwards. It is nutritive and laxative. Should be stopped if there is looseness of bowels. Prepared by washing pearl barley in cold water and rejecting the washings. Boil one part of washed barley with fifteen of water for 20 minutes in a covered vessel; strain and use.

**Bath.**—A five minutes' bath should be given night and morning till a year old. Use non-irritating soap, as soft soap—Vinolia or Cuticura,—and soft water. Gently immerse strong children; sponge quickly the more delicate. Bathroom should be at a temperature of 70°, and bath at 90°. Always use thermometer or the elbow, never the hand, to gauge heat of bath. Sponge till the cord drops off, and don't give bath immediately after a meal.

**Binder, &c.** (See Clothing).

**Bottles.**—The cup and spoon method should be employed if possible, and always if part nursing is taking place. If a bottle be used, Allen & Hanbury's, with a black rubber teat, is best. Never have tubes. The hole in the nipple should not be too big, but should allow rapid drops to escape. Always have several, rather than one bottle. Flush bottles under

the tap, and place in bicarbonate of soda solution, then place in boiled water for 20 minutes before use. Invert nipple, and thoroughly cleanse it daily, and keep in borax solution under cover till used. Never employ a bottle after weaning.

**Bowels.**—Action satisfactory when easy and without strain or pain. Action varies from two or three motions daily to once every day or every other day. Motions are healthy, *i.e.* the food is properly digested when they are soft and yellow, or golden yellow. If choppy, it is due to undigested curd of milk, and indicates less milk. If green and slimy it is due to altered bile, and indicates less starchy or sugary food.

**Circumcision.**—Is the removal of the foreskin, which in many boys is too long, and the apperture is often so small as to set up pain in passing water, tending to bladder strain and rupture. The irritation leads also to bad habits.

**Clothing** causes vomiting if too tight round the stomach. Should be light and loose by day and night. Let the chest expand and the limbs move. Discard caps. The clothing should be drawn over the feet of the child as it lies on the nurse's lap. The binder protects and supports the abdomen, and prevents chill and diarrhœa. Good binders are made of four-fold flannel, the best I know being those of Nurse Gordon, 135, Croydon Road, Newcastle, from whom patterns may be obtained at a small cost. Flannelette should never be used for clothing, which should be soft, warm, and woollen.

**Colic.**—Give dill water, rub bowels with warm oil. Give glycerine injection, and apply warm cloths. If unsuitable food has set it up, give a single dose of castor oil, and correct feeding. Watch next motion.

**Constipation.**—Massage bowels with olive oil night and morning. Give barley water, meat extract, beef tea, fig syrup, or magnesia. Inject a dessert spoonful of oil or glycerine in warm water into rectum with syringe. Give more water, and less milk and lime water.

**Convulsions (Fits).**—Due to irritation, as of unsuitable food, causing indigestion, colic, or diarrhœa, and irritating the nerve endings in the bowels. Or of teething or worms, acting in the same way. Send for doctor, and say what is the matter. Meantime put child into hip bath, or its feet into hot water containing a little mustard, and sponge face and head with cold water. Keep the feet warm afterwards with a hot bottle, guarded by a stocking or bag. Give a dose of tasteless castor oil.

**Cord The, (see Navel).****Diapers (Napkins)** should be of the best swansdown.

A wet napkin should not be dried and put on again, and a soiled napkin should be removed at once, and the child cleansed, dried, and dusted. Napkins that have been in use should be washed with pale soap, well rinsed, and then soaked in cold water till the regular washing day. No soda or dry soap should be used for napkins or clothes, as they set up irritation.

**Diarrhœa.**—Due often to the curd of milk, fruit, cane sugar, or improper food. Give a single dose of castor oil. Reduce mother's or cow's milk, and dilute the latter with a third of lime water and a third of boiled cool water. If stools be still choppy, stop all milk, and give teaspoonful of the white of an egg, beaten up with half a teaspoonful of brandy, for a child under six months, and a teaspoonful for a child over six months. Or give teaspoonsful of whey, made from half-a-pint of milk, just before boiling, by adding a wineglass of the best sherry, and then removing and straining. Or weak chicken tea or bovril, with a few drops of brandy, may be used. If the diarrhœa persists call in your doctor. Give sips of cold boiled water. Keep child in cool room, and put flannel binder round its stomach. If stools are green give Gregory's mixture, and stop sugar, malt, and starchy foods.

**Drying, Dressing, and Dusting.**—Don't dawdle over the bath and dressing. Dress quickly. After the bath, dry with soft, dry cloths, and rub all over with olive oil at night, and dust the buttocks only. After the morning bath dust the groins, armpits, &c., with a puff ball to prevent chafing, and smooth the powder and remove any excess with the finger. Use Mathews' fullers earth, or other soft powder. A good dusting box for vaccination, &c., may be made out of a chip box by stretching and tying a piece of muslin over the top.

**Eruptions.**—Disregard the eruption of oatmeal, which is generally caused by giving heating meat or meat extracts at the same time. Give stewed bananas or apples with it if child be old enough. In any case the eruption will go in time, and is nothing to a sound constitution. Infants often have little hard spots on their delicate skin, due to slight stomach disturbance. If a marked rash occur, call in doctor, and do not wash till advised. An infant's skin peels off during the first few weeks.

**Eyes.**—The eyes of the newly born should be cleansed with boric acid lotion, *i.e.* the lids should be gently

separated and wiped with the lotion on soft linen, or run from a teaspoon between them. If matter be present, call doctor's attention to eye at once. If eyes be inflamed afterwards, use the lotion from the spoon thrice daily, and rub a little vaseline gently on edge of lids at night to prevent their sticking.

**Fire.**—Flannelette should never be used for clothing or nightdress, on account of the danger of its catching fire. Keep the child off the fire by a proper guard, and keep matches (safety preferred) out of its way. No lamp or gas jet should be within its reach. If burnt or scalded, cover the injury with half sweet oil and half lime water (Carron oil) at once. Don't hold burns to the fire or employ water which make them worse, but shut out the air with oil, cream, milk, flour, or vaseline on a clean rag or lint. Put out burning dress by rolling the child in a rug or jacket. Prick blebs with needle but do not tear them away.

**Foods (different kinds).**—The different kinds of food may be illustrated by mother's milk, which is a perfect food, containing all kinds except starch, which is turned into sugar by the saliva, and is not needed by infants as they have sugar in plenty.

The different kinds are :—

- (a) **PROTEIDS.**—Milk curd or cheese to make the cells or bricks that build the body. Other forms: Lean of meats, white of egg, &c.
- (b) **FATS**—Cream, to nourish the body, bones, and nerves, and give heat. Other forms: butter, oil, &c.
- (c) **SUGAR.** Milk sugar, to give energy; differs from cane (ordinary) or beet sugar.
- (d) **SALTS.**—Lime salts, to form bone. Other salts: in wholemeal, oatmeal, &c.
- (e) **WATER** (87 parts), which dissolves the foregoing, makes them digestible and flushes the system.
- (f) **STARCHY FOOD.**—Potatoes, bread, biscuit, rice, and arrowroot, &c., should not be given till end of seventh month. The infant's saliva cannot digest it before, hence boiley is bad before this age. Starch is not present in milk.

**Food for Infants.**—(1) **MOTHER'S MILK** should be used in all possible cases; and in most cases it is possible. It is a crime against the helpless child for a healthy mother to refuse it. Delicacy and menstruation do not forbid it. Consumption (phthisis) alone should be an excuse.

- (2) **PART NURSING.**—Where the mother is delicate part nursing and part feeding should take place. It is easier to nurse than to get up and give food at night. A nursing mother should have abundant

food, fresh air, and freedom from care and worry. Cocoa made with milk, malt extract, and malt with hermoglobin (Borroughs & Wellcome) are better than malt liquors, which tend to evil both to mother and child.

- (3) A WET NURSE.—If the mother *cannot* nurse, a wet nurse or suckling goat is a good substitute, and should always be employed if possible.

#### TABLE FOR NATURAL FEEDING.

Feed by the clock, not longer than 20 minutes at a time, and empty the breasts alternately. Sips of cool boiled water are good before or after.

During the first	month nurse	10 times every 2 hours.
„ second	„ „	8 „ „ 2½ „
„ third	„ „	7 „ „ 3 „
„ fourth	„ „	6 „ „ 3½ „
„ fifth	„ „	6 „ „ 3½ „
„ sixth	„ „	6 „ „ 4 „
„ seventh	„ „	6 „ „ 4 „
„ 8th, 9th, 10th month	6 „	„ 4 „
„ 11th and 12th,	give 5 meals in the 24 hours.	

After the 7th month a meal of half pasteurised milk and half barley water can be substituted now and again, and given by the cup and spoon. A crust of bread can also be allowed.

After the 9th month meals of milk, thickened with oat or barley flour, thin gruel, or oats may be allowed.

After the 10th month thin bread and butter, potatoes and gravy, with cocoa or half milk and half hot water can be given.

Wean gradually, from 9th to 10th month, meal by meal.

- (4) Cow's, asses' or goat's milk, cream mixture, whey, or a prepared food as Allen & Hanbury's, Benger's, or Horlick's malted milk may be employed where natural feeding fails.

Cow's MILK should be clean, fresh, and from healthy animals. It should be strained into glass jars, placed in cold water in a cool room for four hours. Pasteurisation is safest where quality is unknown. Mothers should visit the farms as well as the dairies, to inspect the source. When milk is being given watch the stools. If choppy the curd is not being digested, then reduce quantity; substitute cream or peptonise. Cow's milk differs from human in being devitalised (cold) aged (not fresh), and contaminated (germs, dirt, and dust). It has twice as much curd, the fat or cream is gone, the sugar is less, and the salts more, and it is acid instead of alkaline.

*For Tables for Artificial Feeding see next page.*

ARTIFICIAL FEEDING TABLE (A).

AGE OF INFANT.	Method of Feeding.	Intervals during day in hours.	Intervals during night in hours.	Number of Meals in 24 hours.	Quantity of Cow's Milk at each Meal in Ounces	Quantity of Cow's Milk in 24 hours in Ounces.
1st week	...	2	4	10	$\frac{1}{2}$ oz. or less	5 or less
2nd, 3rd, and 4th weeks...	Do.	2	4	10	$\frac{1}{2}$ to $\frac{3}{4}$ and 1 oz.	6, 8, and 10
2nd, 3rd, and 4th months	Do. } or Bottle with a Teat only {	$2\frac{1}{2}$ to 3	4 to 3	9 to 8	$1\frac{1}{2}$ to $2\frac{1}{2}$ ozs.	15 to 20
5th, 6th, and 7th months		$3\frac{1}{2}$ to 4	4	7 to 6	3, 4, and 5 ozs.	25 to 30
8th, 9th, and 10th months	Drink out of Cup	4	4	6	$\frac{1}{2}$ Milk and $\frac{1}{2}$ Barley or Oatmeal Water	
11th and 12th months		4	6	5	$\frac{1}{2}$ Milk and $\frac{1}{2}$ Hot Water to drink	

TABLE FOR ARTIFICIAL FEEDING (B).—DAILY AMOUNT.

AGE OF INFANT.	Equal parts of Fresh or Pasteurised Cow's Milk and Fresh Cream.	The upper third of the Milk after standing 4 hours in a glass jar in cold water.	Boiled Water.	Barley Water.	Oatmeal Water.	Lime Water.	Milk Sugar.
	OUNCES.	OUNCES.	OUNCES.	OUNCES.	OUNCES.	OUNCES.	OUNCES.
1st Week in Days	{ 1st ...	{	{	{	{	{	{
	2nd ...						
	3rd ...						
	4th ...						
	5th ...						
	6th ...						
	7th ...						
Weeks	{ 2nd ...	{	{	{	{	{	{
	3rd ...						
	4th ...						
	...						
Months	{ 2nd ...	{	{	{	{	{	{
	3rd ...						
	4th ...						
	...						
Months	{ 5th ...	{	{	{	{	{	{
	6th ...						
	7th ...						
	...						
Months	{ 8th ...	{	{	{	{	{	{
	9th ...						
	10th						
	...						
11th and 12th Months	...	One half	One half	...	...	...	...

\* *i.e.*, half milk and half cream = 1 oz. of each, and so throughout.

**Cow's MILK** should be prepared by using (1) the top milk only, which contains most cream, (2) by mixing equal parts of ordinary milk and cream, or (3) if ordinary milk is used cream should be given as often as possible, and the infant should be rubbed with olive oil daily. When the curd disagrees use cream in part or entirely for the milk, especially during the first months, and in hot weather.

**BOILED WATER.**—All water used should be boiled.

**BARLEY WATER.**—(See barley water).

**OATMEAL WATER.**—Made with oat flour and groats (strained) at first, oatmeal gruel afterwards.

**LIME WATER.**—The proportions in table are merely to neutralise the acidity of cow's milk, human milk being alkaline. More may be added to form bone, or restrain diarrhœa up to a third or even a half. If constipation is present substitute barley water, except for the neutralising quantity (1 oz. to 1 pint), and bicarbonate of soda (1 grain per ounce) may be used even for this.

**MILK SUGAR** is not to sweeten, merely to bring cow's milk up to the sugar standard of human milk.

**CANE SUGAR.**—If ordinary sugar is used, less than half that of milk sugar should be added—say half oz. to a pint of food. Malt extract may also be used.

**PASTEURISED MILK** (heating to 155° for thirty minutes), then cool in cold water, is the best preparation for unknown town milk.

**PEPTONISED MILK.**—When the curd of ordinary milk irritates, it should be partly digested by putting a peptonising powder into a jar holding a pint of milk. Shake up and place jar in a basin of warm water for 15 minutes, then pour milk into a saucepan, quickly boil and remove. Peptonised milk may be used for two or three months at a stretch, then gradually try mixing fresh with peptonised milk.

Another method in early infancy is to add together 2 ozs. of cold milk, 2 ozs. of boiling water, and 3 grains of "Benger's peptonising powders" for ten minutes. Add cream (three teaspoonsful), sugar, and give at once without boiling.

**CREAM MIXTURE.**—One tablespoonful of milk, two of cream, two of lime water, and three of sugared water. The latter is made of 2 ozs. of milk sugar or 1 oz. of cane sugar, to the pint of warm water; (stored in a cool place).

**CONDENSED MILK.**—Tends to scurvy, &c., if used longer than two or three months. One heaped teaspoonful to six tablespoonsful of boiled water, with cream added, but no sugar (of which there is plenty) It may be used in hot weather, when cow's milk sours in poor homes. Give fresh cream, white of egg, whey, and stewed banana pulp occasionally.

**WHEY.**—Made with “Benger’s curdling fluid” or “Hansen’s rennet tablets.” The curd should be beaten up with a fork and strained through muslin. A teaspoonful of malted milk in 4 ozs. of whey, or half whey and half barley water, is good in wasting, vomiting, and diarrhœa. Give cold.

**WHITE WINE WHEY.** Add one wineglass of good sherry to half-a-pint of milk (just before boiling); pour into basin and let it cool; pour whey off or strain, and use. Give cold in teaspoonful every 10 and 15 minutes in diarrhœa and vomiting. After latter has stopped 24 hours, cream (teaspoonful to tablespoonful) shaken up, may be added to each meal.

**ARTIFICIAL FOODS.**—Sometimes cow’s milk *cannot* be digested. Try cream mixture or whey, or a food like Allen & Hanbury’s, Benger’s, or Horbeck’s malted milk. Fresh food, as whey, barley water, cream, white of egg, a little stewed banana or apple, or fruit juice, should always be tried with artificial foods to prevent scurvy and debility. Prepared foods can never altogether supercede the fresh.

### **Fits (see Convulsions).**

**Heat.**—Avoid hot sunshine, hot rooms, hot food, and hot baths.

**Health in Infancy.**—Shown by good colour, good temper, sound sleep, normal motions, and steady increase of weight.

**Infancy.**—For purpose of this book from birth to twelve months old.

**Infant Mortality.**—150 children out of a thousand die before the age of one year (some 90 during the first month). Another 100 die during the next three years, so that 250 children out of a 1000 do not attain the age of four years. 3 children out of 4 dying during the first year are brought up on artificial food.

**Kissing.**—Strangers should not be allowed to kiss children; and children should not be allowed to kiss strangers or animals. Diseases are thus transmitted, especially by kissing with the lips.

### **Lime Water (see Food).**

**Medicines.**—Use as few as possible. Fig syrup and magnesia for constipation, castor oil for indigestion or commencing diarrhœa or fits. Gregory’s powder for green stools, and dill water for pain and colic are all that should be required, and care in feeding will prevent most of these being needed.

**Mouth.**—Cleanse the mouth after every meal with a rag wrapped round the first finger, and dipped in

water with a little glycerine or borax in it. This prevents the milk curds souring in the mouth, and prevents thrush. Be gentle.

**Mouth-breathing.**—Prevent this by gently closing mouth when observed open.

**Motions.**—When the food is properly digested the motion is soft and yellow. If choppy it is due to undigested curd of milk. If green and slimy to altered bile.

**Movements.**—Sits up (supported) 4th month; crawls about 4th month; laughs 3rd to 5th month; handles toys 6th month; sits up (unsupported) 7th to 8th month; attempts standing 10th month; stands (assisted) 12th month; walks alone and begins to talk 12th to 18th month. Never urge a child's movements. Leave them to nature. If walking or talking be delayed consult a doctor.

**Napkins (see Diapers).**

**Navel.**—Powder the cord thickly with fuller's earth, and wrap it in a linen pad. Powder it in the same pad and change every other day. The cord drops off about the 5th to 7th day. The part heals readily, or does so by the 14th day. If there be a moisture or discharge, or if a little tongue of flesh be left, apply a little powdered alum twice daily after bathing. If there is a protrusion dust and fill the cavity with cotton wool, and apply a thin cork in cotton wool (like a five shilling piece) over the navel. Then strap it down with strips of strapping, or apply the binders firmly. The protrusion will disappear of itself in time.

**Oil.**—Olive oil is good for rubbing an infant after its bath at night. It is a fatty food, and rubbed into stomach help action of the bowels. Castor oil is good to get rid of irritant food, but should not be given regularly, as it is followed by constipation, and shuts up bowels, making constipation worse.

**Pain** in the stomach indicates indigestion, and a dose of castor oil. Pain in throat or ear from teething, &c., indicates danger; cleanse mouth, give oil, and call in doctor.

**Pulse.**—135 per minute at birth: 115 when twelve months old.

**Respirations.**—25 to 30 per minute.

**Rubbing (Massage).**—Rub an infant's limbs with olive oil towards the body, using inside of thumb and palm of hand, with a circular movement. Be gentle. Rub the abdomen in a circular way over

the centre: and upwards, on the right side, across under the ribs, and downwards on the left side. Rub the chest and back from the sides to the centre. Rubbing daily after the bath at night strengthens the infant the first few months. Rubbing the stomach dispels wind and helps action of bowels. Oil prevents the friction of the dry hand, and is a food.

**Sleep.**—Infants should be in their cot by five or six. Sleep should be promoted in summer by light bed-clothing. They don't catch cold if uncovered. The bedroom should be cool, and the air fresh by the open upper sash of window; and in summer the temperature should not be above 65°. Whilst in winter it should not be lower than 55°. The clothing should be warmer, and a warm bottle may be allowed for the feet. Infants should never sleep with their parents for fear of overlaying (suffocation). Their clothing (nightdresses being better than sleeping suits) should be straight and comfortable, their ears should not be crumpled, and their mouths should be shut (if open). They should lie on the right side, if possible, and be kept off their faces, especially if stout.

**Solutions.**—Bicarbonate of soda - one grain to one ounce of fluid. Boric acid—half teaspoonful in a pint of hot water, and cooled: for eyes, ten grains to one ounce. Borax one teaspoonful in a pint of water: for mouth, ten grains to one ounce. Lime water—one twentieth (one in twenty or one in a pint): one-third to one-half in diarrhœa. Sugar - milk sugar, one-twentieth (one in twenty, or one ounce to one pint). Cane sugar—half the above.

**Sweets** should not be given to children. They upset their stomachs and spoil their teeth. Chocolate and sugar are also not necessary. Give good fruit as bananas or orange juice instead, or stewed apples, &c.

**Syringe.**—A rubber ball syringe, holding one or two ounces, gently squeezed is best. Soapy warm water, or a dessert spoonful of glycerine, or a tablespoonful of olive oil, in warm water, are the best injections for constipation or colic.

**Sunshine.**—Let infant have as much air, light, and sunshine as possible. If sun is hot get it into shade of trees, park, or sunshade.

**Teeth.**—The two lower central teeth come when six months of age, sometimes sooner, sometimes later. Don't be alarmed if they don't appear early, or if the upper teeth come first. Clean the mouth with a little glycerine or borax in water on a rag wrapped round the finger. An india-rubber ring, or a crust

of bread can be used by the child to bite upon. Sips of cold water cool the mouth when teething. Don't use teething powders except under medical advice.

The two lower central teeth appear from the 4th to 7th months.

The four upper central teeth appear from the 8th to 10th months.

Six teeth (two upper molars, two lower lateral incisors, two lower molars) appear from the 12th to 15th months.

**Thrush.**—Characterised by white patches in mouth. Cleanse mouth gently with borax or boric acid solution after every meal. Thrush does not pass through a child. It is a sign of debility; and the diarrhoea of indigestion often scalds the anus at the same time. Hence the idea.

**Utensils.**—Teach from the age of a fortnight the use of utensils instead of soiling napkins.

**Vaccination.**—Small-pox in unvaccinated communities kills thousands, blinds hundreds, and disfigures all. One attack protects for life. Vaccination is a modified attack to prevent the much greater evil, for which there is no treatment except prevention at present. Calph lymph prevents diseases from unhealthy children being spread. Don't play at vaccination. Have four marks put on. If covered with clean wool the first three days, and then dusted with boric acid afterwards, there is no greater inflammation than with one or two marks, which don't give much protection. Vaccination should be repeated twice before twenty. Cover with wool, and bandage, and keep in position with a safety pin through the bandage and sleeve. Vaccinate the third or fourth week before nurse leaves.

**Vegetables** with gravy, as potatoes, cauliflower, and marrow, after ten months old are quite suitable.

**Vomiting** of food at once, indicates lessened quantity or increased length of time between meals. If some time after a meal it indicates indigestion, and the food should be corrected. If persistent call in doctor at once, as obstruction may be present.

**Weaning.**—Wean when 9 or 10 months old by gradually substituting other food, as milk diluted with half barley or oatmeal water, gruel or thin oats or porridge, thin bread and butter, mashed potatoes with butter or gravy. Let the child drink out of a cup, or be fed with a spoon. Never put it onto a bottle. Gradual weaning over one to three months saves the breast and disturbance of the infant's digestion. Wean carefully in hot weather.

**Weight.**—It is not unlucky but very wise to weigh children. It is one of the best guides we possess. Average at birth 7 to  $7\frac{1}{2}$  lbs. Boys usually more than girls. Weigh every fortnight naked in a scale in the same piece of flannel, and deduct weight of latter. Four to eight ounces is lost the first week, and then four to eight ounces is gained weekly up to six months, two to four ounces is gained weekly up to a year old. Bottle-fed children are often much heavier than breast-fed; they ripen quicker, but have not the same quality of constitution.

## WEIGHT TABLES.

Birth	...	from 7 to $7\frac{1}{2}$ lbs.
3 months	...	„ 12 to 13 „
6 months	...	„ 15 to 16 „
9 months	...	„ 17 to 18 „
12 months	...	„ 20 to 22 „

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