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Contributors

Grimshaw, John.

Publication/Creation

London : J. & A. Churchill, 1906.

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HEALTH TALKS ABOUT CHILDREN:

A PLEA FOR THE CHILD

BY

JOHN GRIMSHAW, M.D. Lond.

WITH AN INTRODUCTION BY

E. W. HOPE, M.D.

(Medical Officer of Health for the City of Liverpool).

SECOND IMPRESSION.

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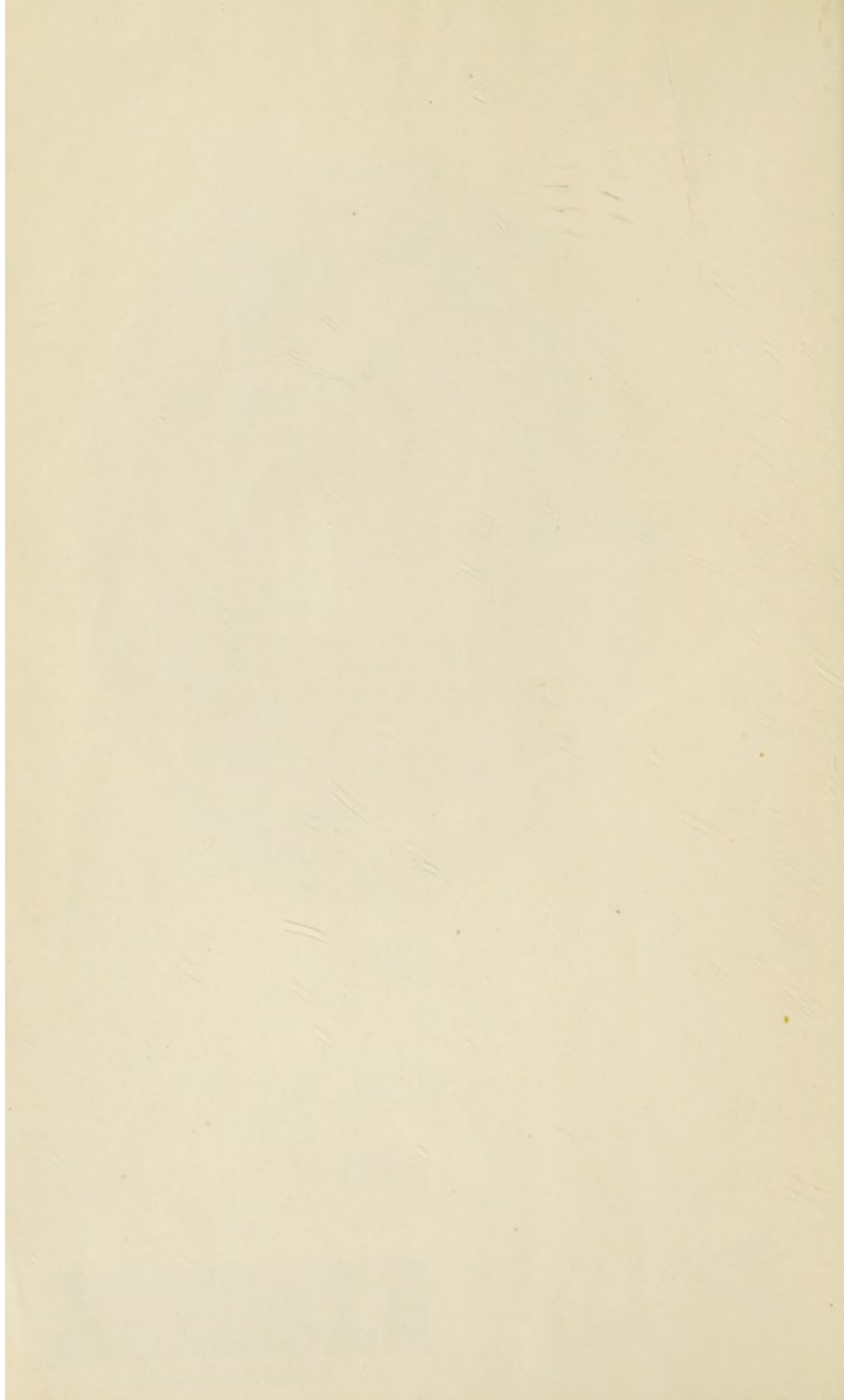
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A PLEA FOR THE CHILD

BY

JOHN GRIMSHAW.

M.D., B.S. (Lond.), D.P.H. (Camb.), M.R.C.S. (Eng.), &c.

SECOND IMPRESSION.

LONDON :

J. & A. CHURCHILL,
7, GREAT MARLBOROUGH STREET.

MANCHESTER : ABEL HEYWOOD & SON, OLDHAM STREET.

BIRKENHEAD : R. G. MORTON, OXTON ROAD.

1906.

“Whatsoever thy hand findeth to do, do *it* with thy might.”—*Eccles. ix, 10.*

“To advise the ignorant, to relieve the needy, to comfort the afflicted, are duties that fall in our way almost every day of our lives.”—*Addison.*

“Have a good conscience, and God will sufficiently defend thee ; for he whom God will help no man’s malice can hurt.”—*Thomas à Kempis.*

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INTRODUCTION.

THE health and lives of infants and young children are so needlessly sacrificed by avoidable mistakes that any new or additional way of diffusing information must be welcomed.

The natural guardian of the infant is the mother, and it is through the mother that the best results must be looked for.

Dr. GRIMSHAW'S "Health Talks" are designed for the information of those who have the care of infants and very young children, and will be of great use to those whose business it is to give either lectures or explanations on the means to be adopted to preserve the baby in a healthy state.

Whatever facilities or accessories may be provided by the Municipality, by philanthropic or by charitable organisations, they will lose nine-tenths of the good they might do, unless the mothers are duly impressed with a sense of the responsibility resting upon themselves.

Dr. GRIMSHAW'S little book will stimulate this sense of responsibility, and serve to promote the study of social problems concerned in the protection and preservation of child-life.

E. W. HOPE.

PREFACE.

THE only claim I dare to advance for this little book is that it is written with the good intentions of helping mothers to care for their children, and of inspiring others to help the mothers.

The "Health Talks" I have delivered to mothers in different parts of Birkenhead, and the leaflets I have distributed to them and to patients attending my Dispensary, form its nucleus, and are responsible for its production.

Dietetics have, until recently, suffered an undeserved neglect. It cannot be too strongly impressed upon the mother, that many of the symptoms and sicknesses of her infant are better treated by careful feeding or modifications in its food, than by drugs. Most children who resist this form of treatment, or that by suitable measures of hygiene, *are not amenable* to healing by medicine.

Many medical cases "recover" but we do not "cure" them. Nature is often neglected in the credit apportioned by the ignorant. Can we assist Nature more? We can by throwing more of our "physic to the dogs," and striving to learn the lessons of life from the Bio-chemist and the Bacteriologist!

For help received it is my pleasant duty to thank the Medical Officers of Health for Liverpool, Manchester, St. Helens, Sheffield, Huddersfield, Glasgow, Battersea, Woolwich, Finsbury, Southend, &c., Dr. Hutchison, and Mr. Rowntree, of York. I have never appealed in vain to any Public Health Authority, or secretary of hospital, milk depôt, or philanthropic society, for copies of reports or instructions.

I have tapped freely information conveyed in the "Lancet," and the valuable children's number of the "Practitioner," Oct. 1905. To these, and many other books and papers, I would gratefully acknowledge my indebtedness.

To all interested in this social and school work, the Reports on Physical Deterioration and Medical Inspection and Feeding of Children attending Public Elementary Schools (Blue-books) contain an endless amount of useful and suggestive information.

JOHN GRIMSHAW.

BIRKENHEAD.

HEALTH TALK No. 1. ON ARTIFICIAL FEEDING OF BABIES.

We will introduce these remarks on the Artificial Feeding of babies with a few words about **feeding bottles**, for understand clearly, that the kind and state—cleanly or otherwise—of the bottle used, is only secondary in importance to what is put into it.

Several kinds of bottles are here shown you. The one to be recommended is the simplest and cheapest bottle on the market. It is called the “Bo-PEEP,” and costs sixpence. It is graduated in tablespoonfuls, and provided with a teat which fits directly over the end of the bottle.

This very popular bottle (shown) with the india-rubber **tube** is entirely **bad**, and should be **condemned** as absolutely **unfit for use**. For however cleanly a mother is, and however anxious she is for the welfare of her baby, it is impossible for her to keep the tube sweet and clean, and prevent it becoming a very real death-trap for the baby. It has been truly said that this deadly tube destroys more babies than any other single cause, and because the danger to the baby is fully recognised in France and certain States of the American Union, the use of it is made illegal. When the “Public Health conscience” of our statesmen “wakes up,” the sale and use of such a destructive weapon as this **baby-killer** will be prohibited by law in England!

It is doubtless a great temptation for a mother to use tube bottles, so as to “free her time” for other duties, whilst baby in the cradle draws at the bottle regardless of consequences, instead of being nursed during feeding exactly as if the bottle were the breast, and the mother’s fingers were controlling the flow of milk as from the human nipple. And the mother will certainly receive her compensation, for a sturdy baby will testify by its strength and well-being that labour is not lost which saves it from the many digestive disorders—those “bottle followers”—which inevitably result from neglect of trifles to which mothers are here urged to attend. Therefore use the “Bo-peep” bottle, without tube, screw top, or rubber valve, a bottle which has nothing unnecessary, is not liable to foul or to hold dirt, and is quite easy to clean in every part.

The **teat** should be one that can be turned inside out to be cleaned as directed after each meal. Test the size of the hole, which should allow the milk to flow through at the rate of one drop a second when the bottle is inverted thus.

If the hole be too small, baby is starved; if, on the other hand it is too large, baby is apt to gulp down its feed too quickly, and so get an excess of food, which it either sickens up and wastes, or keeps down to ferment, irritate the stomach, and excite indigestion with its attendant vomiting, colic, and wasting diarrhœa.

Now I would have you remember this—the highest medical authorities endorse these principles that (1) BREAST MILK is the BEST food for an infant; that, failing this, (2) FRESH COW'S MILK and cream, suitably diluted, is a complete diet. Therefore no infants' food, certainly no patent food containing unaltered starch, should be given to any baby under nine months except by the doctor's order. This statement should be borne in mind and connected with the remarks to be made as to the methods of artificial feeding discussed and advised to be adopted.

The **quantity** of **milk** that should be given at each **meal** is stated in the table provided. Measure the milk and water, or whatever is added to dilute or "let down" the milk, as carefully as you would measure medicine for a sick child. Now you see the advantage of having a feeding bottle graduated or marked in tablespoonfuls. Follow instructions and prepare a feed which you think baby can take. After the meal throw away what is left, then scald and clean the bottle and teat at once as described. Neglect doing this and you risk your baby's life! Why? Because a dirty bottle infects the milk—one little sour-curd turns much milk sour in bottle and baby's stomach—and if milk is left in the bottle it rapidly "sours," and were baby allowed to dine off sour milk it would certainly be poisoned and the stomach and bowels irritated and inflamed. This means also that you must not commit that iniquitous offence of putting baby to bed with a bottle of milk tucked warmly by its side "on suck" for occasional draws throughout the night. For no baby can thrive on sour milk from an unclean bottle, which by morning, after a night's growth of germs under perfect conditions, will contain more offensive and poisonous germs of disease than many well-soiled napkins collected for the wash!

No wonder then that a doctor called in to see a sick bottle-fed baby at once asks for the bottle and smells it! For it is useless prescribing an antidote if mother continues to give her baby poison and microbes.

Cow's milk is the **best** practical substitute available for ordinary use. No "patent food" or "condensed milk" contains the proper food ingredients in anything like the natural proportion and vital condition, or is less harmful really than suitably prepared clean, fresh, cow's milk. But why have you to take such care in preparing it—to add water or other diluent so as to alter the milk that baby can digest it in place of mother's milk?—and how is it so many mothers say that "baby could not take cow's milk, it would not stay down"?—equally ignorant of the fact that it is a physical impossibility for baby to thrive perfectly on any diet which has not for its basis some form of fresh milk, and of the means to adopt to modify milk so as to make it "stay down" and nourish baby! The reason is simply this—the **indigestibility** of the **curd** of cow's milk. The one drawback—the curse of cow's milk—is its curd. The calf has been given four strong stomachs to digest it, and also possesses the art of "chewing its cud," which means that milk curdled in the stomach is returned to the mouth of the calf at intervals during digestion, so that the calf has actually a chance of chewing its curd! Milk is curdled in the stomach in the first act of digestion. The casein of cow's milk is now thrown down in tough, leathery, indigestible curds, whilst human milk is curdled in fine, soft

flakes which can be easily digested. No wonder, then, that the part of cow's milk which presents special difficulty of digestion, and taxes the power of the baby's single stomach, is the curd?

The feeding of infants is an art which, to practise intelligently and successfully, requires some knowledge of the composition of foods and of the processes of digestion. Suffice it to say here, that milk is composed of fat, sugar, proteid, salts, and water. This table gives in a simplified form, and in parts per hundred, the relative composition of human and cow's milk.

	Human Milk.	Cow's Milk.			Cow's milk (pure).
		1 1-2 of water.	2 Equal parts.	3 2-1 of water.	
Proteid (curd)	1 $\frac{1}{2}$	1	1 $\frac{1}{2}$	2	3
Fat	3 $\frac{1}{2}$	1 $\frac{1}{2}$	2	2 $\frac{3}{4}$	4
Sugar	6 $\frac{1}{2}$	1 $\frac{1}{2}$	2 $\frac{1}{2}$	3 $\frac{1}{3}$	5

Fat (creamy part) is necessary for the growth of the bones, teeth, nerves, the fat of the body, and for the production of heat.

Too little fat in the food leads to much disorder and disease. The baby is thin, weak, dull, backward; suffers from constipation, cold hands and feet, and tends to grow rickety. (Excess of fat may cause sickness and diarrhoea, *i.e.*, "fat indigestion.")

Sugar (sugar of milk) is needed for the production of heat, and to make fat.

If in excess (*e.g.*, patent foods, condensed milks) it is liable to ferment in the stomach, etc., and cause vomiting, windy colic, diarrhoea, *i.e.*, "sugar indigestion."

The baby grows *unhealthily* fat, flabby, pale, and rickety, and is more liable to take other diseases, especially diarrhoeas, and to die from them.

Proteid (curd ingredients) is required for the growth of the body in general, the blood, etc.

Excess of it causes colic, vomiting, &c., *i.e.*, "curd indigestion." Baby is constipated, and passes pale, pasty, lumpy motions, containing undigested curd. This curd is liable to irritate the bowels and to excite diarrhoea. All vomiting and diarrhoea (from any cause) lead to wasted and diseased babies, and babies that die.

Too little proteid means a thin, starved, pale, flabby, probably rickety child.

Salts (lime, &c.) are necessary more particularly for the growth of bone. They are not present in a good useful form in patent foods.

Water is an essential in food, and is beneficial if given occasionally to baby, instead of a food like milk, to relieve its thirst. Two-thirds of a fat baby consist of water, so "water" it sometimes!

We overcome the difficulty of excessive quantity of curd by diluting the milk with water or other diluent, and thus partly "naturalise" it.

On referring to the above table it will be seen that in milk and water, equal parts, the curd is equal in amount to that of human milk, and in milk one, water two parts, the curd is rather less. But note that the

indigestible, hard nature of the curd remains the same although there is less of it, so that with very young babies (shortly after birth) a dilution of milk one, water two parts is required, and in very intolerant, delicate, or premature babies perhaps milk one, water three parts. But this excessive dilution should not be exceeded on any account, and must not even be maintained for longer than two or three weeks, else baby will get too little food and become a thin, pale, and flabby mite. For be it noted in milk and water half-and-half the fat and sugar are already less than natural, and if more water is added the poorer the milk becomes in proportion, and you have to make up for the deficiency in these vital constituents by adding cream and sugar. This over-dilution, or the giving of too poor milk—sometimes truly more the fault of the dairyman than the mother—is a very real danger amongst poor mothers, for in correcting the fault of indigestion they commit the crime of starving their baby through forgetting to check the feeding of baby by **weekly weighing of baby**. For an easy way to avoid this pitfall is not to be content with the food “staying down” unless the weight of the baby continues steadily “going up.” Many a time if baby were weighed in the balance, our methods of feeding it would be found wanting. So never forget to check the feed by the weight. The balance is the best “ready reckoner” for the mother of the errors of feeding, and of the general state of health of her baby. An unhealthy fatness may certainly lead to a deceptive gain in *dead* weight, but this fatness is always accompanied by flabbiness and paleness, with a lowered resistance to disease, and heightened liability to succumb to any trifling ailment of infancy. So long as the flesh is firm, the skin “marbled,” the lips, etc., of a good colour, the rise in weight cannot deceive us. There is no mistaking the typical square-headed, pale, transparent-looking, and cold, jelly-like, flabby-feeling of the sugar-fed, fat baby, for the robust, ruddy, vigorous, evidently-healthy appearance of the thriving, breast-fed infant, which uses its blood to resist disease germs as strongly as it uses its legs to remove offenders! Mothers yet require some education as to the real points of a “prize baby,” and ought to have their minds cleared of many misconceptions which attract them to the worship of the “museum” type of exhibition infant.

Suppose the baby digests well but thrives badly on such a diet, it will be evident that it is being STARVED—it is not getting sufficient food. The feed must either be too poor in part or insufficient in total amount, or to express it in another way, lacking in quality or quantity. Only a medical man can tell you what ingredient of the feed is short. Suppose we wish to give extra curd or proteid material without giving more of the indigestible curd of the cow's milk, we add to the feed beef juice, white of egg, or whey instead of water. If more fat is needed, more cream (or virol) is given, or a little cod liver oil is added to the diet apart from the meals.

I mention these little details to help you to a better understanding of the principles of baby feeding and food requirements. In ordinary every-day life it would be sufficient to give more milk and less water; *to make our feed gradually and watchfully stronger—with one eye on the stomach, and another on the scales!* For it is perfectly true, though

perhaps strange, that a child may waste from getting too much or too strong food, as by this means indigestion, vomiting and diarrhoea might arise, and these are wasting disorders. *Baby lives on food it digests.*

And it often happens that it is necessary to MODIFY THE CURD of cow's milk before baby can digest the milk in sufficient strength to nourish it.

To alter the nature of the curd thrown down in the stomach, or to assist its digestion in case of difficulty, instead of plain boiled water we add barley water or lime water. **Lime water** as a diluent must be freely used, and should replace at least half of the water; being alkaline, it corrects over-acidity in the stomach and bowels, being binding also, it is of special value in acid-motion diarrhoeas and "scalding under the napkins." **Barley water** is more laxative, and is therefore useful in constipation. **Oatmeal water**, prepared according to recipe, suits some constipated babies even better, whilst a few babies who cannot easily digest curd, thrive well and are less stubborn in the bowels if each feed of milk and water is thickened with a little good **non-starchy patent food** such as Mellin's Food. Remember that these foods must always be used with fresh milk let down with water, and to replace the sugar which need not now be added, as the patent food already contains an excess of sugars (from predigested or "converted" starches of the wheat), which are laxative. You will now understand how it happens that "patent foods" improperly used may easily become patent poisons! Understand clearly that no patent food can be an efficient substitute for good fresh milk. At most they are in a few cases a mechanical aid to the stomach when baby is suffering from "milk or curd indigestion," is constipated, and passing undigested curd in its motions. After six months they may prove useful additions to milk, but not substitutes for milk. Benger's Food as an addition to milk is particularly valuable in some cases of curd indigestion. Because not only does it aid its digestion by breaking up and softening the curd, but this is actually predigested in part by the ferment in the Benger's.

It is a good plan too, especially if baby's bowels are constipated, and the milk is diluted with barley or oatmeal water which contains a little starch, to add a teaspoonful of **malt extract** to each bottle of food just before it is warmed up for the meal. Because malt contains a ferment which converts starch into sugar, and even a little starch upsets the stomach of some infants and excites "starch indigestion" with flatulence, colic, and frothy stools containing undigested food. Malt Extract is also useful in "curd indigestion," for by its use the casein of the milk is prevented from curdling in leathery lumps, but instead, fine flakes are formed which are digested with greater ease. The addition and well mixing of about half a teaspoonful of the malt extract to the warmed feed will suffice to effect this desirable change.

[Citrate of soda (one grain to an ounce of milk) reduces considerably the difficulties of curd digestion, and it is well worthy of a trial, under medical supervision, before resorting to condensed milk or patent food. Understand that the addition of citrate of soda,—or a pinch of bi-carbonate of soda, or two teaspoonfuls of lime water, to each feed when the milk is stale and therefore over-acid, the use of more lime water, barley water, &c., as described above—all these are methods to

overcome the indigestibility of the curd only. The fat and sugar are unaffected, the milk may be poor or impure, or contain some irritating antiseptic like boric acid. IT IS VERY IMPORTANT TO REMEMBER THAT BOILING, OR OTHERWISE TREATING MILK, WILL NOT TURN BAD MILK INTO GOOD MILK, OR RENDER STALE MILK FIT FOR FOOD, OR TRANSFORM DIRTY MILK INTO CLEAN MILK.]

If baby does not thrive it may be advisable to provide a more varied diet, for even an infant relishes a change in its *ménu* like its parents. Therefore thicken one or two meals a day with Mellin's Food, Benger's, or Horlick's Malted Milk, in addition to the ordinary milk feeds, and for dinner give a little red gravy from the meat, as it is pleasing to the baby and preventive of scurvy. For just as "herd milk" from a number of cows is better, and more uniform in composition than the "milk from one cow" of exploded fame, so it is possible that a little mixed dietary in some cases may compensate for errors inseparably connected with every plan of artificial feeding of infants.

If milk modified in the way described cannot be digested, "humanised" milk should be tried if the mother can afford it. Most large dairies now supply it in two strengths at a reasonable cost. It is suitably prepared, sterilised, and bottled in such a way that it can be stored without risk of "souring," though not without some depreciation in its nutritive value.

It may interest you to know how cow's milk is "humanised," or so altered in its composition as to resemble that of human milk. A quantity of milk is divided into two equal portions. From one the cream is skimmed, and then the casein is coagulated (now curd) by rennet and removed. The whey thus strained off, together with the cream and a little added sugar of milk, is mixed with the other unaltered portion of milk. This mixture therefore contains half of the original curd with all the other ingredients unaltered, and it is this reduction to an amount similar to that present in human milk which is the main feature of the process of "humanising" the milk of the cow. The deficiency in sugar of cow's milk is corrected by the addition of sugar of milk. The slight excess of fat which is more beneficial than otherwise is reduced by removing some of the cream should baby show signs of "fat indigestion," or undigested fat in the motions.

Dr. Ashby in "Health in the Nursery," and Dr. Holt in "The care and feeding of children," describe in detail how cow's milk can be "modified" by the mother at home, and its ingredients varied in many ways to meet all sorts and conditions of babies, and by those desiring further information these two excellent books might be consulted with advantage. Personally, I think such home making of humanised milk amongst the poor is entirely out of the question, and I have not yet met with a mother or nurse who has made the attempt, although in Manchester and other towns, through the action of the public health authorities, extensive and practical instruction under medical supervision is given in the modification and sterilisation of milk at home according to Dr. Ashby's methods.

Another very scientific method of infant feeding, of American origin, has been largely advocated of late years in England. Milk is treated like medicine, and a prescription for a "milk-mixture" is written by

the medical man, and sent to a milk laboratory, or to one of the big dairy companies, to be "made up." The precise amount of fat, sugar, curd, &c., required in the milk is stated to a decimal point, and this "chemical food" is sterilised, and delivered in suitably plugged bottles each containing enough for one meal of this substitute for human milk. Many medical men are discarding such highly artificial and machine-like methods of infant feeding in favour of the home modification of milk, or intelligent and simpler feeding on those less expensive lines we have described, and underlying principles of which we have discussed.

Supposing a mother "who cannot always be rushing to a doctor," yet who often finds time and money to rush from one chemist to another trying one food or another, in a chronic state of anxiety and panic—supposing, we say, that such a foolish mother still persists in directing the feeding of her baby without medical advice, or that baby does not thrive in spite of proper trial of feeds carefully prepared according to above directions, what ought next to be done?

Assuming that the curd is still stupid and will not digest—that the curd is alone to blame and *not the child*, and only a doctor can tell you this—the mother may now try **condensed milk** (Nestlé's quite suitable), as the curd of this is known to be more digestible than that of cow's milk. This should be given to start with in the average proportion of one teaspoonful to six tablespoonfuls of water, with, whenever possible, a teaspoonful of fresh cream to each bottle every two-and-a-half hours, to make up for the deficiency in fat of the condensed milk. Remember the dangers arising from its continued use owing to the large amount of sugar it contains; they are very real and not imaginary, for condensed milk, like all other patent food, cannot be an efficient substitute for fresh milk for more than a few weeks at most, only when baby's delicate stomach requires a rest from cow's milk, and a change from its curd. So as soon as possible return to cow's milk, giving it properly diluted, without sugar (which is supplied in excess by the condensed milk) for one or two meals a day, until baby's stomach is coaxed into taking it altogether, "keeping it down" with comfort and steady gain in weight. Once again you are reminded that *regular weighing* of the child is the only test of the success or failure of the food selected, and the aim of a physician to provide the baby with such a food that the stomach can retain it, and in such strength that the baby can gain weight on it. Understand clearly that for the normal and healthy infant **CONDENSED MILKS AND PATENT FOODS ARE ABSOLUTELY UNNECESSARY.**

As you will hear later, one of the "dried milk foods" (of which "Horlick's Malted Milk" and Allen and Hanbury's "No. 1 and No. 2" are good specimens), is useful **for a time**, when baby cannot digest any kind of fresh milk—because their curd is more easily digested. Remember, however, that like all patent foods, they contain excess of sugar and are deficient in fat. Therefore, because of this chemical fact, and their patent manufacture and artificial nature, *if these dried foods are continued for weeks or months together, rickets and scurvy will probably be produced*, and meanwhile baby may suffer from "sugar indigestion."

Supposing that all the methods described have been tried without success, and a thin, ill, fretful, wasted baby bears witness to our failure, what can medical skill do now? We can pre-digest the milk, that is, digest the curd by peptonising powders and thus relieve baby's stomach of work it would otherwise have to perform. Often vomiting and diarrhoea will cease when this **peptonised milk** (diluted if necessary) is given, and the weight of baby rise satisfactorily even when all other methods have failed, especially if *baby's stomach* is medically treated as well as its food. This is a medical point I would have you not forget.

Suppose this resource also fails, the mother and medical man will have to admit that they are dealing with a very difficult case—a baby, with a stomach perhaps ruined by weeks of bad and careless feeding. Yet there is still hope! We cease to give cow's milk altogether, and try to find some suitable diet by skilfully concocting a mixture of **whey** in which white of an egg or raw meat is a substitute for the curd of the milk, or by mixing egg-water, sugar, and cream in proper proportions to make an artificial mixture which resembles human milk.

The different mixtures that can be evolved in these days of scientific baby feeding are only limited by the chemical skill and ingenuity of the enthusiastic medical practitioner, and are certainly useful, provided the mother permits her doctor to carry out his *plan of feeding*, instead of hastily dismissing him on the strength of ignorant criticism by her foolish friend or his vicious foe.

For the richer mother of a delicate baby which she cannot nurse, of course there are the wet nurse, asses milk, &c., and the various "humanized" and "modified" sterilised milks, in the manufacture of which the chemist combines with the cow to satisfy the most fastidious baby. For the poor, however, the ass does not secrete her milk, and the "milk bakery" of the chemist demands fees the poor cannot afford to pay. Neither can the poor be relied upon to make peptonised milk, or those home-made brands of "humanised" milk, or even the simpler modified milks as described above, apart altogether from the question of their getting an adequate supply of pure, fresh milk. All patent foods and condensed milks have grave objections when used as complete foods. Even when they are ordered for partial or temporary use, an ignorant mother is apt to make mistakes, or is tempted to abuse their use, and to go blindly on with such feeding happy in the thought that her baby is not curdly-colicky and screaming from indigestion. A time, however, is fast coming when the public authorities of our large towns will provide milk depôts, and so ensure the poor getting clean, fresh, safe, good, sterilised milk, free from antiseptics, suitably diluted for baby, sufficiently rich in fat and sugar, and measured and bottled in such a way that one bottle means one suitable feed for baby. When these happy days arrive the mother will simply have to get from a milk depôt her daily supply of bottles in a wire cage, adjust the teat, warm the feed, give to baby, and return empties! A doctor at the milk depôt will see that her baby is regularly weighed and inspected, and the baby will respond to the public care bestowed on him by becoming a strong and capable citizen, a credit to the town that has shown such foresight and judgment in his upbringing.

HEALTH TALK No. 2.

INDIGESTION—VOMITING—DIGESTION.

Indigestion.—No infant whether weak or strong, breast or bottle fed, escapes indigestion in some form or other, and almost every mother and nurse can painfully testify that digestive disorders accompanied by colic and flatulency, vomiting and diarrhœa, form a large part of the troubles of baby's life. These disorders are commoner in the hand-fed baby than in the more fortunate suckling of a healthy mother, but please note most carefully the words of Dr. Ashby :—" **It is certain that a vast amount of the dyspeptic diseases from which artificially fed infants suffer, can be avoided by care in the selection of the food and in attending to all the details in its preparation.**"

The penalties you inflict by neglecting the rules for feeding I tried to explain to you at our first "Talk," are: on your baby the pangs and purges of a horrid indigestion, and on yourself the added trouble and anxiety of nursing a fretful, sickly, loose, and wasted baby!

The baby is liable to acute and chronic indigestion in a manner similar to adults, and the important cause is improper feeding, (food dirty, tainted, unsuitable, in excess, &c.) perhaps aggravated by a chill or neglect. This indigestion may affect the stomach or bowels, or both may be involved together. In stomach or "gastric indigestion" vomiting is the prominent feature. If bowel or "intestinal indigestion" be present baby suffers from "windy colic" and diarrhœa, and passes loose, often offensive, stools containing undigested food (curd, &c.), slime, or even blood.

In acute indigestion or "gastric catarrh" (inflammation of the stomach) the **vomiting** is **acute**, and is accompanied by feverishness, furred tongue, sour breath, &c., and often followed by diarrhœa caused by the offending food or other stuff, or *poison*, escaping from the stomach into the bowel, and there working similar disorder as an irritant or "*inflamer*" of the delicate lining of the gut.

It should be borne in mind that scarlet fever and other infectious fevers of children, besides "inflammation of the brain," may begin suddenly with vomiting, so that it is not easy even for a skilled doctor to be sure for some time whether the sickness means stomach irritation merely, or the onset of a more serious and general disease.

The food treatment for the mother to adopt in such a case of acute vomiting can be summed up in one word—**starvation**. Young children bear starvation very well, and indeed in these cases derive the greatest benefit from it, provided you keep the child warm and do not deprive it of water. This advice, bear in mind, applies to every case of short acute disease, though especially applicable to that of the stomach or belly. You are all acquainted with the time-honoured maxim of "starve a

fever," and it will interest you to know, therefore, that from the days of that famous physician, Hippocrates, who was born about 460 B.C., *fasting* has been the sheet-anchor of every succeeding expert sick-room dietist in all acute diseases. I lay such emphasis upon the observance of this most important principle of starvation in short acute diseases, and especially in those affecting the STOMACH, because mothers seem never to be happy unless they are giving their sick baby food in some form; any suggestion of starvation they tend to view with horror, and even a sign of evil intent on the doctor, that he means to kill instead of save the poor child, who, the anxious deluded mother thinks, cannot live without being liberally stuffed with food every few minutes! To meet this prejudice I do not demur to the little patient being given "beef-tea," which every mother fancies she can make to perfection, and the making and giving of which usually affords her considerable joy! For home-made beef-tea is a much misunderstood product of the cooking art, and instead of containing (as generally supposed) the goodness of the meat in a specially nutritive and easily digested form, the real food, the muscular fibre of the steak which is quite insoluble in water under ordinary conditions, is thrown to the dog; and the beef-tea, which of this domestic brand is simply coloured and scented water, is given to the invalid! But it is not wasted, do not forget that; baby is benefited by the water and the absence of the steak, and mother is relieved by thinking in a state of ignorant bliss that she is plying baby with *food* that is nourishing as well as delectable and stimulating!

I am convinced that beef-tea has been the means of saving many lives by thus artfully covering and securing a real starvation, which an ever-watchful and kindly Providence has designed as suitable dietetic treatment for the poor sick patient, who, otherwise, might have had just cause to cry out "Save me from my friends!"

In diseases that are prolonged as well as acute, like typhoid fever, the case is very different. Now it is necessary to maintain the general strength as much as possible, in order that the patient may withstand and repair the long-continued ravages of the disease, and be fortified by food as strong as the digestive and absorptive POWERS WILL ALLOW, to enable him successfully to combat the germ and its poisons which play such havoc by their assault and battery on the constitution.

Equally liquid and suitable foods in acute sickness are thin barley-water, and the various broths and meat juices. In some cases barley-water in teaspoonful doses seems to have a soothing effect on the stomach, and will "stay down" when other liquids or foods are returned.

Albumen—or egg-water, is nourishing and useful in cases of vomiting, and can sometimes be retained by a very irritable stomach. Whey, given cold in teaspoonful doses, alone or alternately with egg-water or peptonized milk, is considered by some to be invaluable in the acute vomiting and diarrhoea of infants. If a stimulant is necessary it can be given in the form of "sherry whey." A few drops of meat juice (or bovine) may be added to the whey and gradually increased, and later cream will serve to strengthen the mixture and prepare the way for a milk diet again.

If it be certain that the acute vomiting, or attack of "acute

indigestion," is due to faulty feeding, it will be to the advantage of our little patient for the first two or three hours to encourage emptying and "washing out" of the stomach by liberal draughts of very hot water. This is soothing to the stomach, besides being cleansing, feeding, and stimulating. Thus you see hot water combines the qualities of an internal poultice, somebody's "matchless cleanser," food, drink, and brandy—all in one. When the irritating and undigested food has been expelled, keep the stomach at rest for a few hours by adopting the method of judicious starvation as above described, and remember that whatever is given now must be given in small quantities with a teaspoon.

The rule is to give the stomach what it can retain with comfort and advantage, not to give anything, or an excess of something, which will be sicked up or retained to aggravate the "colic" or "belly ache." Remember that a sick patient may accept a teaspoonful and refuse a tablespoonful of some food or drink, and that it is our duty to take the measure of the stomach's strength and forbearance, and to reduce or increase our doses according to Nature's danger signals of sickness and pain, or other indications of temperature, tongue, belly, or motion.

After the food has been reduced in quality or quantity on account of any form of "upset" stomach of which vomiting is one sign, care should be taken not to return too rapidly to the original and ordinary feeding of baby. Infants are more or less like adults in this respect, and it often takes them several weeks to recover completely from an attack of acute indigestion or "inflammation of the stomach."

The general remarks on the food treatment of chronic vomiting apply equally to a baby convalescing from acute vomiting.

Chronic Vomiting though often a sign of chronic indigestion caused by some continued error of feeding, *may* be the result of disease not in the stomach at all, but in the brain. In so called "inflammation of the brain," or meningitis as it is medically termed, persistent and apparently causeless vomiting is a valuable and suggestive sign, and a doctor is sometimes placed on the horns of a dilemma when an anxious and hypercritical mother plies him assiduously with pointed questions such as "What *is* the matter with baby?" or "Will baby get better, doctor?" It often happens in such a case that the mother is quick to discern the lack of omniscience on the part of her medical adviser, and that a second doctor's opinion is sought when an alarming fit, or disquieting squint, appears to settle the diagnosis of brain disease. Under these circumstances all the ignorance (with the blame of course) is imputed to doctor number one, and all the credit of successful prophecy with the added glory of signing the death certificate is assigned to doctor number two!

Chronic Vomiting I might discuss with you under two headings—"real" and "sham." These two terms do not require further description.

The "**Sham**" vomiting of health is what is known as "possetting." It simply means that baby has taken more than it requires, the safety valve of the stomach is put into operation, and in answer to nature's message to unload, the excess of milk, &c., is promptly and wisely rejected by baby. When the safety mechanism is thrown out of gear through persistent over-feeding or other cause, baby's delicate stomach

is habitually over-taxed with an unnecessary, and therefore undesirable, quantity of food which lies in the stomach (and then bowels) undigested, fermenting, and sour, and chronic indigestion with its vomiting, windy colic, diarrhœa, and wasting follows as surely as black night the day.

Now you will understand the saying common amongst nurses that "sick babies always thrive." In other words as Dr. Hutchison emphasises, chronic vomiting in your infants is of little importance and need not cause anxiety unless it be accompanied by loss of weight. For a "sham" sick or "possetting" baby thrives not so much in spite of, as on account of, its excess ejecting stomach, and the cause of such an infant vomiting some of its food within a few moments after breast or bottle, is because the feed has been too large or it has been taken too rapidly. Train your child to regular meal-times, and to take its feeds slowly and leisurely. On no account should you put a baby to the breast, or a bottle to the baby, every time it cries; it may be crying from colic or thirst, toothache or earache, pin-prick or clothes-tight, cold or wet, or for many reasons of which HUNGER is the LEAST IMPORTANT. Look at the clock if you are thus tempted in the face of Providence to fly to the bottle or breast to soothe your fretful charge, and *if it is not feeding time do not feed it*, but remember that a teaspoonful or two of clean cold water will often comfort and sustain it until the clock says "feed." Fretfulness, stomach-ache, sickness, and indigestion are caused if an infant is fed irregularly, too often or too freely, and although the internal fomentation of a hot feed *may* soothe a stomach-ache for a minute, it will, if ill-timed, certainly annoy the mother by aggravating the indigestion of her child for many days. We adult sinners are apt to forget similar hindrances to health, or inducements to ill-health, by tempting the appetite with bitters and niceties of the "can't I tempt you?" order, at or between meals when the stomach says no, and by forcing food into it when Nature does not demand it, but even rejects it as a salutary lesson to the gourmandising intemperate.

Remember, however, that this habitual overloading of baby's stomach of which this "sham" vomiting or possetting is a DANGER SIGNAL, is not in itself a desirable feature or accompaniment of baby feeding, and it may easily prove the forerunner of the "real" vomiting of an actual indigestion, if its cause is not detected and removed.

In the "real" vomiting of *ill* health (or *ill* food) there is often some disorder or disease of the stomach itself. This form of frequent or habitual vomiting between feeds is always a sign of indigestion which points to faulty feeding. This *is* of importance because it is accompanied by a real illness of baby—a chronic indigestion—as shown by the sour vomit which contains chunks of hard curd, the windy colic, a diarrhœa with perhaps green offensive motions, and this time sure enough—a definite and **progressive wasting**.

The nonsensical superstition against weighing babies will have no consideration from sensible people like the mothers of Birkenhead. In some countries, I might tell you, the WEIGHING OF INFANTS is part of a religious observance which is STRICTLY ENFORCED! And so it ought to be, for it is most important in rearing a baby that it should be weighed once a week, as a going back in weight means a going back in health,

and that there is *surely something wrong* which should be put right without delay. Therefore I would advise mothers to use the scales against baby as a disease detective, in the same way that a doctor in his practice uses a thermometer to detect fever.

In every case of troublesome vomiting medical advice should be sought to **discover the cause** and to remove it, especially when some error of feeding has produced this result. Vomiting in a breast-fed baby is generally due to the infant taking too much milk and that too quickly. This overfeeding and "bolting" are two common causes of indigestion. The mother may have too much milk, or the child be, relatively, too hungry and vigorous; in either case the result is the same, and our little glutton swallows a much greater quantity of milk than can be efficiently dealt with by the stomach in the allotted time.

Recognising this element in the case of repeated "possetting," care should be taken that suckling is not prolonged beyond 15 minutes, and that it be interrupted by occasional rests; or one breast may be given instead of two, and the mother taught to check a too ready and abundant flow of milk by compressing the nipple between her fingers.

If sour vomiting occurs sometime after nursing and is repeated, it is a sign of indigestion. In such a case it often happens that the milk is too rich in fat. The mother should then take more outdoor exercise, plainer food and less meat; the breast milk must be diluted, and therefore made more digestible, by giving baby one or two tablespoonfuls of plain water, lime-water, or barley-water, five or ten minutes before nursing; and the intervals between nursings be lengthened, because by so doing the milk solids (fat, &c.) are diminished, and baby's stomach is given a necessary rest, or at any rate a longer time to perform the harder labour of digestion imposed upon it by such rich milk.

The milk may be too rich in the proteid (or curd) element, for children, alas! can suffer from indigestion, sickness, and griping, and pass undigested curd even when fed by the mother. The observance of the above rules, and the use by baby of a mixture containing alkalies as prescribed by the doctor, will assist the digestion of the curd, and quickly relieve all the distressing symptoms—provided the *stomach is sound*.

The same principles are to be observed in hand-feeding. Too frequent, excessive, or irregular feeding must be amended, and the hold of the teat so regulated, and the elevation of the bottle so nicely adjusted during feeding, that greedy and "gulpy" feeding is prevented, and a sudden overloading of baby's small stomach rendered impossible. It may be an advantage to lengthen the intervals between meals by half-an-hour or an hour when digestion is not quite satisfactory. If vomiting persists and symptoms point to curd indigestion, it will be necessary to treat the milk as described in our first "Talk" by adding more water, lime-water or barley-water, or both. Benger's food as a thickening and peptonizing agent is now a valuable addition to the milk, or this may be partially or completely peptonized with Fairchild's peptonizing powders according to directions enclosed in the packet. The difficult curd is thus digested for baby, the much harassed stomach is afforded the requisite rest, and thereby it happens that the "staying down" power of peptonized milk is greater than that of ordinary

fresh milk. On this account, partially peptonized milk is useful for young infants who have great difficulty in digesting the curd of milk, but it should not be used indefinitely as its nutritive value is probably less than that of fresh milk, and it has the attendant disadvantages of all cooked and artificial foods for baby, one of which is a liability to induce RICKETS and SCURVY. So after a trial of one or two months at most, it should be left off gradually by shortening the time of peptonizing, and lessening the amount of the powder used. In chronic vomiting when the infant is greatly weakened, sherry whey may constitute the sole nourishment, or be given in alternate meals with the peptonized milk.

In milder cases of chronic indigestion with vomiting, condensed milk may be successful, because it contains less fat than ordinary milk, and its curd is less tough and difficult to digest. Do not forget to dilute with water far more than ordinary, and do not add cream under these circumstances, as our object now is not to fatten baby, but to rest the sick stomach from the tough curd of fresh cow's milk and to relieve it from the strain of digesting fat. In other words, to enable an inflamed stomach to recover from its temporary indisposition of curd (or fat) dyspepsia, and a weakly stomach to gain strength to digest its proper food in a healthy manner in a reasonable time.

Condensed Milk has long been a favourite substitute for mother cow's milk among the poorer classes, doubtless because it is convenient to use, and less likely to give rise to vomiting, flatulence, and indigestion, than so-called fresh milk, which calls for more study and modification to use successfully as infants' food. It is important for a mother to know that there are several kinds of condensed milk, sweetened and unsweetened, good and bad. The remarks on condensed milk in our first "Talk" referred to the sweetened variety. Some of the cheap brands sold by grocers and others represent condensed creamless, and therefore, fatless, *skimmed* milk, with half of its bulk consisting of cane sugar (not milk sugar) which has been added to preserve it.

It will surely be evident that such milk is quite unfit to nourish an infant, however it may "stay down" and settle baby's "stomach-ache." Babies thus fed will certainly DIE FROM STARVATION.

Therefore, mothers should be careful to buy the **best brands** only, milk which has been condensed from "whole milk" containing its full complement of cream, and the **unsweetened whole milk** should be preferred. Dr. Niven, in his printed instructions, "How infants should be fed," issued from the Public Health Office, Manchester, warns mothers to "carefully examine the labels on the milk tins, as by the law of the land all condensed milk not made from whole milk must have attached to them in legible characters the words 'Machine Made Milk' or 'Skimmed Milk.' The milk should be diluted according to the directions given on the tin, which renders it necessary to get for infants only **unsweetened whole milk.**" The milk diluted as shown on the tin (2 water to 1 milk) should be tried without further dilution. If the infant cannot digest this it may be tried with an equal part of water added. Great care must be used to protect the milk from infection or contamination by dirt or dust after opening the tin, which must be

kept covered in a clean, cool place. The importance of these precautions will be discussed when we consider the causes of Diarrhœa, and explanations given why it is so very necessary that all food liable to go bad, such as milk, meat, soups, &c., should thus be KEPT COVERED in a COOL, CLEAN PLACE, to which AIR and LIGHT have free access.

Only a medical man can tell you whether the curd, fat, or sugar of the milk is specially at fault, and which ingredient should therefore be reduced or modified. The decision is of some practical importance, because should the sugar be the offender, malted "patent" foods and all other foods containing much sugar (*e.g.*, condensed milk) will aggravate the trouble. Whereas if less fat be required on account of repeated vomitings of small quantities of food between feedings, plain milk (*i.e.*, without added cream) or condensed milk (less fat) may be indicated. Herein lies the value of milk prescriptions for "built" milk of a certain composition. For in this way we are enabled to fit the infant with a food according to the capacity of its stomach, and the measure of its physical requirements.

Exact chemical analyses of mothers' milk is out of the question in ordinary, every-day life, and fortunately not often necessary, for intelligent food trials will point the way to a correct solution of the difficulties of digestion,—though it may be a tiresome task for both mother and doctor to find a food which will comply with our two tests—that of staying down and of sending weight up. In other words the stomach must be easy, and the scales uneasy.

The mother should not forget that the inflamed and unhealthy stomach or bowels may require appropriate treatment from the doctor, before even suitable and properly prepared foods can be digested and absorbed, and that other conditions such as cleanliness, regular habits, warm feet, fresh air, &c., all greatly influence her baby's digestion, and are quite as important as the clean preparation and giving of feeds, however perfectly planned or skilfully supervised.

Some golden rules for feeding delicate and sickly babies, which should be strictly observed, are (1) give at first very weak food, a little at a time, and slowly—do not hurry baby over its little meal, (2) strengthen the food gradually, hasten slowly, for any sudden increase in the strength of the food is likely to upset the digestion, or aggravate an indigestion; (3) weaken the food by replacing two or three table-spoonsful of the mixture in the bottle with the same quantity of boiled water, should sickness, colic, or other indication of indigestion reappear. And, in conclusion, let me again remind you that SCRUPULOUS CLEANLINESS in food, jug, cooking utensils, and bottle is absolutely essential to baby's healthy digestion and physical well-being.

The second part of this "Talk" may fittingly deal with the **processes of digestion**, and the nature of indigestion in older children. Again we must enjoin, as preventive precautions, slow eating with much chewing of suitable food which ought only to be given at meal times. Hurried eating and bolting of food suitable or otherwise, and improper, irregular, and indiscriminate feeding instead of "watering" between meals, are two causes which are responsible for much stomach and bowel trouble in the form of what is known as "bilious attacks," or "gastric stomach,"

a term invariably employed by the poor when they mean "gastric catarrh" or inflammation of the stomach.

Digestion commences in the MOUTH by a ferment (ptyalin) in the saliva (spittle) changing the starch of the food into sugars which the body requires, and which we give the child in the form of jam, treacle, or honey, or simply as sugar in its tea or on its "butty"! The food should be well crushed and broken up by the teeth, and the more thoroughly this is done the greater is the flow of saliva, the more efficient is mouth digestion, and the better prepared is the food to enter its next abode, the stomach. Dr. Spokes says "It is a fact that the large majority of people, both young and adult, do not efficiently prepare food for proper presentation to the stomach. Our ancient forefathers, who left the well-ground-down teeth we find in such skulls as come to light, were not in a hurry to get to school in time, nor to catch trains. Moreover the food was hard and tough [soft, pulpy food leads to over-eating and bolting], and the necessary mastication resulted in a large flow of saliva, not only beneficial for gastric digestion, but for the teeth which were bathed in this alkaline fluid."

Repeatedly in these "Talks" I will tell you that an infant before it has cut several teeth cannot digest starch. This is because the ferment (ptyalin) is absent from the saliva, and that this "mouth juice" is now but scanty. Therefore remember that no teeth means no ptyalin, and that no starch should be given without a doctor's orders before teeth appear.

When our food mash reaches the STOMACH it is subjected to more crushing and churning by the movements of this muscular bag, and in this way it is intimately mixed with the weak acid and the two digestive ferments called *pepsin* and *rennin*. Pepsin is the ferment which peptonises the proteid or curdy food in the stomach, and prepares it for absorption into the blood to be used by the body. You will recall what I have already said about pre-digesting the milk for babies with weak stomachs or feeble digestions, and will now understand better how we thus lighten baby's work by ourselves artificially doing this "peptonising" share of it outside the stomach before the food is swallowed. Rennin, the ferment in rennet which we use to curdle the milk when we are making whey, serves in the same way to curdle the milk in the stomach in the first act of digestion. An important point to remember in connection with this production of curd is, that the more stale and impure the milk, the more acid it becomes, and the more acid it is, the more leathery, lumpy, and indigestible are the curds deposited in the stomach. This is one reason why stale, acid, sour milk is apt to excite indigestion, vomiting, and colic, and why—to neutralise or destroy the acid—you are advised to add a pinch of bicarbonate of soda or two teaspoonfuls of lime-water to each feed, if you are doubtful about the milk being fresh and sweet. But make no mistake—this "doctoring" of stale milk does not make it fit for food; the poisonous germs are still there, and, even if you destroy these by boiling, the *toxins* (poisons) they have manufactured by their growth in the milk remain there unaffected, and ready to slay as viciously as ever an innocent baby who is fed on such a poisonous "germ stew."

The contents of the stomach are next passed on to the SMALL BOWEL, which is, according to some authorities, the real digestive organ of the body.

In its more or less stormy passage through this tube which delights in a length of 23 feet in the adult, the food meets with the bile from the liver, and secretions from the "sweetbread" (pancreas), &c., which act on it—especially the fats—still further. Indigestion affects, and sometimes more so, the bowel as well as the stomach, is "intestinal" as well as "gastric" that is, so that the ease and swiftness with which any particular food can be acidulated and peptonised in the stomach, and then driven into the bowel for further treatment, is not necessarily a sure sign that it will not encounter obstacles, and cause suffering and discomfort in the shape of flatulency and spasms, before it has threaded its way through this long tube. The poor baby fed on cheap and "starchy" patent food has a particularly painful experience of "chronic intestinal indigestion."

What happens to the unabsorbed remnants of food in the LARGE BOWEL need not concern us here. This part of our inside is the drain-pipe of the body, and through it waste matter is expelled as it is through the waste pipe of the sink in your scullery. Such a human "soil pipe" should be kept free by regular action, or flushed and "ventilated" by occasional aperients if constipation, biliousness, or intestinal indigestion be present, so that impurities and poisonous products of disordered action can escape externally, and not be retained under pressure to get absorbed into the blood and poison the system. For retention of undigested residues of food in any part of the digestive canal, the result of indigestion or constipation, promptly results in fermentation and putrefaction, whereby poisons are manufactured and then absorbed, to derange or throw out of gear the whole mechanism of the body, with disagreeable results here, there, and everywhere. The presence of undigested and irritating food in the bowels may give rise to looseness, liquid and offensive stools being passed which contain undigested food. Straining, passage of small stools containing mucus (slime), and a raw, "scalded," sore-looking condition of skin about the buttocks, suggest that the large or lower bowel is in a condition of catarrh or inflammation.

Indigestion in the child may be acute or chronic, affecting the stomach or bowel, or both, and may be due to a passing irritation, or to a more serious catarrh or inflammation. Repeated irritation by faulty or dirty feeding—and remember that there is a *dirt* indigestion (by germ or toxin) as well as a food indigestion—will cause an inflammation (gastro-enteritis) which may result in more or less permanent injury to our little patient. Great care and judgment is required in choosing the right quantity and quality of food for an infant or young child which is suitable and suited to its digestive powers. The wish to get a small and weakly baby on quickly, or to make strong and stout a sickly and pining child, often leads to too much, or unsuitable food being given which it cannot digest, but which on the other hand will be unabsorbed, unused, wasted, and, what is worse, a source of irritation, annoyance, sickness or diarrhœa, and ADDED ILLNESS.

The child suffering from "gastric catarrh" is pale and out of sorts, cross and irritable. The tongue is furred, breath offensive, appetite poor and capricious, and there may be some sickness and "stomach-ache." The bowels are usually constipated, although diarrhœa is often present, especially in younger children, on account of the complicating catarrh

of the bowel or "intestinal indigestion." In a chronic case the disease may resemble a mild attack of typhoid fever inasmuch as the child is feverish, ill, and wasted, in fact, many cases of supposed gastric catarrh, or "gastric fever" as it used to be called, have probably been attacks of real typhoid.

Once again the mother is reminded of the value of food treatment by JUDICIOUS STARVATION. Picture to yourself the condition of things in the child's inside. The stomach is "sick," inflamed, and coated with slime, its glands are dried up and fail to secrete the natural digestive juices, and the undigested, fermenting, putrefying, germ-breeding, food stuff is lying in it still further irritating, inflaming, and poisoning the system, yet by feelings of sickness or griping calling for expulsion by emetic or purgative, or even ridding itself of its own nuisance by exciting the vomiting or diarrhœa so often "Tired Nature's" unsweet restorer!

In the infant deluged at frequent intervals night and day with starches and sugars in some "patent food," which unfortunately stays down in the stomach only to stop in the bowel, the remedial signs of a chronic intestinal indigestion with bursting bowel are but too obvious in the shape of a distended abdomen, griping pains, and loose and offensive motions. And this form of "colicky tube" indigestion in the second stage of the food's journey, is more common than the pure stomach catarrh, or simple indigestion, in older children who are allowed to indulge too freely in rich starchy or sugary food, and to bolt it, or shovel it into the stomach direct, without giving the mouth a chance of doing its share of the work of digestion by its teeth and ptyalin!

The dietetic treatment once more, in child as in infant, is to KEEP OUT and CLEAR OUT. As a preliminary measure the intestinal cesspool is emptied of its stinking contents by a thorough scavenging with calomel, castor oil, or gregory powder. For the older child suffering from acute indigestion a good plan at first is to empty the stomach by giving at one draught a teacupful or more of soda water or plain hot water, with about half-a-teaspoonful of bicarbonate of soda dissolved in it. In this way vomiting is excited, the stomach is washed out, and the acid contents of the stomach neutralized. For a few days milk and soda water alternating with beef tea or Benger's Food should be the diet, and a return to solid food be made gradually through fish, milk puddings, &c., as the appetite returns, the tongue clears, the bowels become regular, and the motions more natural. In the more chronic cases the duration of such gradations in diet may be long. If, however, this sequence of food be observed, (1) proteids, (2) starches, (3) sugars, and, last of all, (4) fats, the result will usually be gratifying to all parties, patient, mother, and doctor.

To "stuff" such a patient instead of giving the overtaxed stomach or bowel a rest, may prove the last straw in the load that leads to a general breakdown of the digestive machinery. Encourage such a child to eat and you assist it to die; feed it with cod liver oil to fatten it, or with "strong" food to make it strong, and you delay recovery indefinitely, or induce a state which may imitate, if not actually become, one of "consumption of the bowels," through consumption of too much or unsuitable food forced on the child by a foolish, stomach-compelling mother.

HEALTH TALK No. 3.

DIARRHŒA—CONSTIPATION—COLIC—PATENT MEDICINE.

Diarrhœa.—This is the scourge of infant life; its frequency and death-dealing force are shown by recent returns of the Registrar-General, which prove that out of 22,000 deaths from diarrhœa, 17,000 occurred in children under one year old. One of the gravest and most fatal diseases of infancy is that known as acute summer diarrhœa. All will agree, therefore, that a knowledge of the causes and means of prevention of such a destructive disease should be widely spread amongst the mothers of young children so prone to be attacked, and that it is important for them to fix in their minds the fact that the number of DEATHS from DIARRHŒA amongst the bottle-fed is "15 times as great as it is amongst those who are naturally fed."—(Dr. Hope).

Dr. Nash, Medical Officer of Health for Southend, writes that the two causal factors of transcendental importance in epidemic diarrhœa are:—

"(1) The neglect or incapacity on the part of mothers to feed infants at the breast alone.

[This grievous calamity is responsible for other infantile and childhood diseases and deaths besides those due to diarrhœa.]

"(2) The pollution of cow's milk, condensed milk, and other substitutes for breast milk through the agency of unclean cows, unclean milkers, flies, dust, hot weather, uncleanly habits, long-tube bottles, and general carelessness. *The use of a long-tube bottle should be made illegal and a punishable offence.*"

Dr. Newman, of Finsbury, in his "Infants' Milk Dépôt" report states:—"From these facts it is clear that condensed milk becomes (through contamination after opening tin, etc.) on the whole the WORST form of FOOD FOR INFANTS, that unclean cow's milk . . . greatly increases liability to death, and that all artificial feeding as practised in tenement houses is attended by a high mortality."

The Diarrhœas of children now under discussion may be divided into two great classes—SIMPLE AND SEVERE. A simple diarrhœa is often due to a dirty bottle and tainted milk, or to some irritant in improperly prepared food, such as an excess of indigestible curd of cow's milk. Infants fed on patent foods containing much sugary stuff are often attacked with diarrhœa. This is why "patent foods" may easily become patent poisons! Starchy foods, like arrowroot or bread, or solid and unsuitable food from the parents' plate will also excite it. Nurses should not give baby "just one" strawberry or gooseberry in the fruit season. It is distinctly dangerous, and therefore a practice to be condemned as likely to cause a diarrhœa which might prove fatal.

Mothers must not neglect even a simple diarrhœa of baby during the

hot weather, and should acquire more knowledge of slighter ailments to which children are prone, for frequently medical men find that measures of precaution and cure are not taken until the disease has obtained a strong hold, or become incurable. In summer diarrhœa preventive measures rank first in importance, for it is much easier to ward off the disease than to cure it.

The cure of a simple diarrhœa due to a passing irritation of the bowels, is largely effected by the regulation and proper preparation of baby's feeds—always, of course, combined with scrupulous cleanliness—along the lines already indicated. If the diarrhœa has been caused by wrong feeding, a dose of castor oil, by clearing away any irritating matter, will quickly relieve it. If not—recognise the *danger* of a *diarrhœa* in a young baby, and consult the doctor in time.

A useful practical point to bear in mind is that a diarrhœa in a breast-fed baby is usually traceable to the FEEDING, but in those hand-fed to the FOOD. Slight attacks of diarrhœa in breast-fed infants can generally be corrected by diminishing the frequency of the feeding time, or the amount given at each feed. An attack of acute diarrhœa in a bottle-fed baby often necessitates the temporary disuse of fresh cow's milk, and the severer the diarrhœa, the curdier and fouler the motions, the more urgent the need to *stop the milk*.

It is well to remember that dieting as a preventive and curative remedy plays a most important part in the treatment of these gastrointestinal (stomach and bowel) complaints. Seeing that the poison is commonly introduced into the system by means of the milk, sterilised milk, or Horlick's Malted Milk (a dried milk food), is better than milk ladled from a bowl in a shop if baby and season are diarrhœic. Herein comes the great value of whey, or veal broth, as a temporary substitute for cow's milk, and the mother should be taught thus to replace milk in cases of sudden illness known in every nursery, and only to return to it by easy stages as the child can retain it and benefit by it.

Let a mother mind that a diarrhœa may not be as simple as it looks. There are some 40 different varieties known to doctors and sampled occasionally by infants, and although the diet cure is not a cure-all it certainly assists all cures, and early dieting, if it does not prevent all disease—as of course it does not—yet it may prevent some, lessen the severity of many, and save thousands of children annually who now die with insides stuffed with decomposing food stinking like long-unscavenged ashpits.

The severe and fatal form of diarrhœa of babies is known as summer or "**epidemic diarrhœa**." An unhealthy child, especially one subject to simple diarrhœa the result of neglect, or careless and "dirty" feeding, is more apt to get this bad and more fatal form, and to die from it. It is essentially a disease of bottle-fed babies, for a great cause of diarrhœa is **poisoned milk**. Owing to the filthy conditions in which cows are usually kept and milked, cow-dung with other muck is almost invariably present in the milk ordinarily used. Moreover there is no guarantee that the milk is derived from healthy cows, and it may therefore come from tuberculous (*i.e.*, consumptive) cows with

abscessed udders which discharge their highly infective matter into the milk which baby drinks, and gives it "consumption of the bowels."

In the march of the milk from the cow to the consumer the risks of contamination are many and mighty. Milkman, dairyman, housewife—all as a rule are very ignorant of precautions that should be taken to preserve the purity of the milk, and, incidentally, the health of the infant.

After receiving its share of dung and dirt from ungroomed cow and unwashed milkman in the "shippon," milk is exposed for sale in wide bowls in shops hard by dense traffic in the best fly-catching, dirt collecting, and bacterial breeding style! 'This stuff labelled "Pure Milk" really "should be pitched down the drains," as Dr. Vincent emphatically says. Is there any wonder then that medical men are preaching the **need for reform** in everything appertaining to the collection, distribution, and storage of milk, for the better protection of it (and therefore the public) from pollution?

Human milk is *sterile*, i.e., free from germs of disease of any kind. It has never been exposed to contamination or infection like cow's milk as commonly supplied and stored. The reason why milk depôts have been established is to supply babies with germ-free, sterilised, "humanised" milk so as to save them from being poisoned by impure milk. Mothers should note that if they pour boiled or sterilised milk into any dirty or unscalded vessel, or expose such milk in uncovered basin or jug, they at once re-infect the milk, make it no longer sterile, and thus undo all the good which has formerly been done for them.

Dr. Klein, in his report to the City of London on the bacteriological investigation of samples of milk supplied, writes that the results are further proof of the utterly reckless and careless way in which most of the milk trade is carried on, and he further expresses the opinion that the Legislature should devise some practical means of dealing with "this grave source of danger." *8 per cent. of London milk is tuberculous!*

The Southend Town Council, recognising the importance of the protection of milk *prior to its coming into the house*, has set an example which will, I hope, be followed by other communities, in passing a regulation under the Dairies, Cowsheds and Milkshops Order, 1885, requiring under penalty that "every purveyor of milk, or person selling milk by retail, shall cause every vessel containing milk for sale to be properly covered or to be otherwise sufficiently protected from contamination by dust or flies." Manchester leads in this forward movement.

As you would expect, milk is intimately concerned in the next great cause of diarrhœa, viz., **Dirt**. Dirt about the house; dirt in the house; dirt on the child; dirt in the child! The germs of diarrhœa grow on dirt in the soil, on the ground, in the house—anywhere! And they are carried about and into the air by flies and dust which settle on the floor, on the furniture, on exposed milks (in which they thrive) and other foods, and thus cause the germs to be inhaled or swallowed by the child in millions! And especially so when it is allowed to crawl on dirty floors, or to suck filthy "dummies." For to the consumption of tainted food, or of impure water, or to the breathing of fouled air, &c., is this fatal summer diarrhœa mainly due. Mothers should, therefore, be careful to boil all cow's milk given to children in hot weather in the summer

when diarrhœas are more prevalent, and after boiling, to keep milk covered in a cool, clean place, secure from flies, dust, dirt, and smells, which make milk "go bad." As Dr. Hutchison truly says, the importance of doing this at this time cannot be exaggerated. The difficulty of the poor in getting good milk, and in storing it amid unhealthy surroundings in a clean, sweet state, is another reason why the baby suckled at the breast on germ-free milk has infinite advantages over the child fed from the bottle. Mothers will not now be surprised to learn that children thrive best in clean, airy, well-ventilated, sanitary, dust-free and fly-less dwellings; and that it is their duty, as Dr. Nash urges, to keep the house and children thoroughly clean; to keep the floors well scrubbed, to damp-dust not dry-dust; to burn all vegetable and animal refuse (fish heads, &c.)—why will servants *not* do this, but prefer to keep the rotten things in bucket or ashbin and stink the yard and the kitchen? and to report to the Health Department of their district any smells or choked drains and gullies about their premises or street.

It is on account of the risk of diarrhœa you are advised not to wean your baby during hot weather, especially between July and September. For infection is often traceable to milk, therefore run no unnecessary risks. Be zealous in these things, and you will have done much to protect your baby from those gruesome germs which kill babies from diarrhœa, &c., in their thousands every year. Picture to yourself an anxious mother, the weak, exposed child, the powerful host of attacking germs. Crying mother; dying child; victorious germ. A successful general once wrote: "I came; I saw; I conquered." Will you knowingly let the death-dealing microbe enter your house, baby's milk, or baby itself, and exult with devilish glee in your dead child? Surely not! You will only be too willing to learn how to combat the foe; to become active resisters to this germ invasion of your home, and thus save your baby for the joint benefit and pride of yourself and the State. Another cause which paves the way to a bad attack of Diarrhœa is COLD, for a chilling of the body makes all of us more susceptible to disease of any kind. Do not forget that babies are specially liable "to take a chill," and to contract diarrhœa (and bronchitis) if they are not properly and warmly clothed.

It is well in particular to keep the feet of baby warm—for cold feet will often induce a diarrhœa—and to protect the bowels from cold by placing a binder of flannel round the abdomen.

You have all heard of the "cholera belt" worn by residents in hot countries where cholera is prevalent. Baby should have its belt of flannel, because of its liability to "choleraic" diarrhœas even in England, especially during July, August, and September, when the soil reaches a certain degree of heat. So guard baby against chill, and if you wish to adopt the foolish practice called "hardening," or to exhibit your child's bare arms and legs to admiring friends in the streets, understand that you are exposing your child to grave risk of disease and death.

Amongst the families of the poor an important part of mothering is the making and mending of clothes, and inattention to this duty must

entail much suffering and disease of the ill-clad children. On the other hand there is a danger in overloading the child with clothes, and making the child unduly sensitive to a chill or catching cold through "coddling" it.

In the **treatment** of the severe "**summer diarrhœa**," which may affect the child like cholera or dysentery, I would impress upon the mother the importance of seeking medical advice early, and of faithfully and trustfully carrying out the instructions which she will be given. If the baby is bottle-fed she will probably be told to stop cow's milk at once, really to starve the child, so as to empty of food the stomach and bowels, and to give baby nothing else for 24 hours (or more) but sips of boiled, hot water, or a little thin barley water. I have usually found that mothers resent this advice very much; they are not content unless baby is taking food in some form or another. They think that the child cannot live if it fasts, ignorant that by timely fasting it may live, and that by untimely eating it may die!

The world now fails to realise the wonderful **curative powers of fasting** which was long ago recognised as the most efficient of cures, but has since slipped into oblivion with many another good thing. Frequently the most speedy cure for disease (especially abdominal) can be found in fasting, and the easiest way to aggravate disease and to cause death, often is in eating.

"One of the most idiotic and harmful practices is to eat when you are not hungry, and the mother who thinks she is benefiting her ailing child by urging it to eat when it has no appetite, ought not to be entrusted with the rearing of a child."

It is known that Chinese doctors are very successful in their treatment of diarrhœal complaints. Their method in treating these troubles seems to be a liberal use of hot weak teas and broths, and the stopping of all other foods. "The idea seems to be to drench the entire system with hot water, washing out the body in that way, and relying upon the elements added to the water for medicinal action as well as nourishment."

The hot water serves to wash out of the stomach and bowels the nasty, irritating stuff reeking with the germs and poisons which are killing baby—the removal of this poison is the first object in treatment—and also to stimulate and nourish our little patient at a critical time when food would not stay down on account of the vomiting so often associated with bad diarrhœa, and, if it did, would not be digested and absorbed, but hurriedly passed through the bowels, thus further inflaming and irritating instead of soothing and helping the sick child. The motions containing unchanged milk should convince the mother of this, and the blood and slime prove to her that such a bad and inflamed state of the bowel which causes such a discharge, *must* demand **rest from all digestive work**.

Later, egg water, whey, etc., might be ordered with advantage.

Mothers are also urged not to "handle" babies suffering from diarrhœa unnecessarily, and certainly not to "dandle" them. Let them lie quietly in their cot in an abundance of fresh air through wide-open windows, or even place them outdoors in a peram. or improvised bed—for the value of cool, pure fresh air, in this, as in other diseases, is much

under-rated by mothers—and attend to them with the least possible shaking of baby's bowels or churning of their contents.

The chief points to remember about the feeding of baby suffering from acute summer diarrhoea are:—(1) To give no food until the stomach can retain and digest it; (2) To begin with very weak food and with small meals; (3) To let the patient have as much hot water as he can retain so as to help in washing out the bowels; (4) To be careful in convalescence as regards the food and feeding; (5) That egg water, meat juice, peptonised milk, whey, condensed milk, equal parts of milk, lime water and barley water, represent in order a scale of digestibility of foods for a sick baby; (6) That **fresh air**—open air best of all—is a **grand food** and restorative for the baby.

Finally, be cleanly in all things, hasten to boil all soiled *infective* diapers, to destroy the “dummy,” open the windows, burn your refuse, empty your ashbins, attend to your drains, gullies and yards, and by every means prevent pollution of air, milk, and baby. For even breast-fed and well-fed babies may suffer from Epidemic Diarrhoea. The use of “dummies” which readily collect dust and dirt from floor and everywhere, the pollution of the air of houses by infective or injurious dust and dirt, “smells” and microbes, the inoculation of food and other material by filth infected with the poison of summer diarrhoea and carried hither and thither by house-flies buzzing their message of DEATH BY UNCLEANLINESS,—all these causes surely contribute to the toll of the breast-fed dead. This extract from instructions on “The Care of Infants,” issued by Dr. Hope, Medical Officer of Health for Liverpool, sufficiently shows the importance attached by hygienists to the prevention of disease by the destruction of dirt, and the need for the ejection of germs as though it meant the casting out of devils.

“The health of children, and, of course, adults too, is promoted by habits of strictest cleanliness as regards food, bedding, and dwellings. No slops should be kept in rooms longer than is absolutely necessary. The whole body should, if possible, be washed daily with soap and water, clean clothing should be worn, and clothes worn during the day should not be slept in at night. [Do not allow baby to crawl on dirty floors.]

All water required for drinking purposes should be taken direct from the main; no filth or dirt should be allowed to accumulate within or near the house, the ashbin should be frequently emptied, **no slops should be thrown into it**, and animal and vegetable refuse should be burned. Windows should be kept open every day as long as possible.”

In the salvation of children from disease and death *cleanliness ranks before godliness*, and the mother who loves her baby will see to it that *black dirt* does not drag to her doors the *black hearse*!

Constipation.—Babies will suffer from constipation if the milk is short of fat, and a little cream, therefore, given with the milk will often relieve it. An excess of undigested curd will also cause it, and evidence of this may be seen in the hard, lumpy, pasty, “curdy” motions, which cause much straining to expel, and thereby perhaps a rupture or prolapse (fall) of the bowel. In general, constipation calls for more cream and less milk. Whilst diarrhoea is *the* disorder of “bottled” babies, suckled infants are apt to suffer from constipation. Often this is due

to mother's milk not being rich enough in fat. If so, set aside some of the morning's milk from the milkman, skim it, and give the baby at the end of a meal, three or four times a day, a small teaspoonful of cream diluted with mother's milk (drawn off with the breast pump), or simply with a little tepid water. If the mother's milk is poor, and baby is "poor" too and constipated, a feed or two daily of cow's milk, diluted with barley or oatmeal water, may serve the same purpose. If the child is well otherwise, barley or oatmeal water may be tried alone. In a few cases it is the milk sugar that is at fault. So that half a teaspoonful of sugar, dissolved in tepid water, with meals, will supply the needful stimulus, and this addition may not only relieve the constipation, but help the infant to thrive better and put on weight.

A bottle of milk and "Mellin's" night and morning may prove helpful in this class of case when the digestion is imperfect. In infants over nine months orange juice may be tried. Cod liver oil may be useful.

The mother must take sufficient out-door exercise, and have plenty of porridge, golden syrup, gruel, vegetables and fruit in her diet, and she should take an occasional aperient to relieve her own constipation if present. I remind you once more that the way to success in baby feeding is largely by intelligent experiment and proper "mothering."

In the case of the HAND-FED baby the same principles guide us. The curd is lessened in amount and made more digestible by diluting the milk with barley or oatmeal water, or a little malted "patent food" and water. A pinch of bicarbonate of soda may be added to each feed now instead of the lime water which, as you know, is constipating, or instead of the latter, a teaspoonful or two of fluid magnesia can be added to the feeds, and increased or diminished according to requirements. Do not forget to add cream and sugar should constipation in baby seem to demand it. In some cases brown Demerara sugar acts better than white or "milk sugar." Or, again, the sugars (from digested starch, &c.) in some malted food ("Mellin's" or "Horlick's") may replace the milk sugar, and by thickening the milk thus, the food adds to the digestibility of the curd as already explained. Amongst simpler remedies, a teaspoonful of extract of malt added to two or three feeds a day, or a little warmed water sweetened with a similar quantity of honey or treacle may prove useful. Habitual constipation at a later period of baby's life may be difficult to overcome by dieting alone.

Rather than be continually dosing a bad case with purgatives, it is advisable for the mother to seek medical advice, as constipation is often associated with, and responsible for, vomiting, colic, wind—those distressing accompaniments of indigestion—and for these the baby is often given soothing syrups, which tend still further to constipate and injure the poor sufferer, instead of steps being taken to discover the cause of the trouble in faulty feeding, and to correct this, and the indigestion, etc., by suitable drugs which act splendidly in such cases.

Friction—in the way shown—or kneading of the abdomen with a warm hand lubricated with olive oil or an embrocation, for five minutes night and morning, will help the bowel to clear itself. In obstinate and neglected cases, however, an enema of soap and water, etc., or a teaspoonful of glycerine will be required in addition to tonic and aperient

medicines by the mouth. A combination of aperient with enema is far superior to the former alone, but in place of an injection, mothers often find useful a piece of soap, sharpened like a lead pencil, gently inserted up the bowel, or the introduction of a glycerine suppository like the one I show you.

So you see the way to treat constipation is by (1) dieting; (2) massage; (3) enema; (4) suppository; (5) drugs.

Treatment by dieting and massage must be tried before giving physic.

Colic or griping is a very common symptom of the indigestion of infants, and is caused by wind in the bowels in a state of "spasms." Stale, acid or sour milk will cause it as we should expect, but the common cause of it in bottle-fed babies is the indigestible CURD of cow's milk, or patent food. This remains in the stomach and bowels undigested, and therefore decomposing, fermenting and giving off quantities of gas, which distend the belly, and kink the bowels in this painful manner.

Every mother knows when her baby is well. It is comfortable and cheerful, sleeps most of the time, and does not suffer from indigestion with its colic, vomiting, &c. The dyspeptic baby is not such a little angel as this; indeed many a worried mother would be inclined to call it more of a little demon, and so senselessly smack it or drug it to sleep with some powerful narcotic in a soothing syrup; or if the baby cries much, some mothers will foolishly argue that it wants more to eat, whereas the crying is nearly always caused by the poor little thing being over-fed and already having its digestion overtaxed. Thus prevails great ignorance even amongst intelligent mothers.

An infant expresses pain by cries, not in curse-words. So when it is griped it screams, and this griping or colic is the commonest cause of persistent screaming in a child. There are other painful conditions which cause screaming in babies, the most important of which are earache and teething. These two often go together, and are not easily to be distinguished sometimes. Earache *demands* attention. Teething as a cause of pain has been over-rated. So remember that the belly is not the seat of all pain, neither is any method of feeding infallible, or a cure-all for every trouble connected with the belly.

And the cry of a baby does not always mean pain. It sometimes means hunger or thirst, cold or discomfort from neglect. Baby does not find that tight clothes or pricking pins are pleasant things to endure. But the cry of colic is peculiar and is accompanied by a pained, pinched face, the hard or "balloon" belly, the drawn up legs with the dragged down corners of the mouth, and the rumbling and rush of the "squall" in the gut. The relief following the passage of the "bound wind" from the bowel is a sure sign of the colicky origin of the pain.

Frequently in these "Talks" you have heard of "windy colic" in connection with indigestion, and you will therefore understand that the cure of the colic is that of the accompanying indigestion. That means to say that you must attend to all the feeding instructions and above all, be cleanly—a dirty tube-bottle means a trumpeting, colicky baby; give less milk and less frequently, avoid overfeeding, though a hot drink does sometimes soothe for the moment; and alter the curd in the way described to make it more digestible, peptonize it, or remove it altogether

for a time giving the whey of the milk alone. Probably in a severe and chronic case it will be more convenient to replace cow's milk with condensed milk as baby's **invalid diet** until the stomach grows stronger, and the curd of cow's milk therefore causes less colic.

If a breast-fed baby has frequent or habitual colic it is usually because the mother's milk is too strong. The mother should take more out-door exercise, eat plainer food and less meat, and avoid drugs, worry, and nervous excitement as much as possible. The baby should be suckled less often—only once in $2\frac{1}{2}$ or three hours by the *clock*—*not by the cry*, and the milk can be diluted, and its digestion assisted, by giving the little sufferer two or three teaspoonfuls of sweetened lime water before each feed. Of course if constipation exists you must correct it in a suitable manner as explained. Mother's constipation may cause baby's colic.

The pain of an acute attack of colic can be relieved by rubbing the belly with the warm hand, and by giving the patient half a soda mint in a little hot, sugared water, or a teaspoonful or two of peppermint or dill water, to assist it to disperse the wind. Never give babies any form of soothing syrup. "Ignorant women sometimes think they are beneficial because after being dosed the baby will cease crying and go to sleep, but such sleep is really the effect of some powerful narcotic, and is doing the child incalculable injury, and if continued in will greatly enfeeble its constitution, if it does not actually cause its death."

I believe that the pernicious practice of **drugging** infants is as rife to-day as ever it was, and that every chemist who supplies the poorer classes could tell the same old story of infants' cordials, soothing syrups, and such stuff sold in great quantities under the protective conditions of unscrupulous advertising permissible in England to-day. Only the other day a chemist told me of a ragged urchin asking him for a "pennyworth of laudanum, and please mother wants to know how much she should give to a baby six months old?"

And some nurses have a wicked habit of adding secretly to baby's bottle drugs to soothe or induce sleep, thus injuriously obtaining a temporary solace for the baby, and relief for themselves from the trouble of pacifying a colicky or fretful infant.

The "Lancet" recently recorded a case of surreptitious drugging of a child, which may, I am afraid, be taken as a sample of a still prevalent practice. A healthy well-grown boy, was, at the age of five weeks, placed in the care of a highly recommended, elderly nurse; the infant was bottle-fed. Soon after the arrival of the new nurse the mother noticed that after each bottle the child used to fall into an unusually heavy sleep. In the nurse's absence one evening the mother discovered a bottle of white globules in a small cupboard in the nursery, marked "one to be given, and if sleep is not produced a second to be given in four hours." The globules were found to contain a very powerful poison which acted as an irritant and strong purgative, and this explained the fact that during the month the nurse had charge of the boy, he suffered from sickness, diarrhoea, and wasting! On the dismissal of the nurse the child speedily recovered. The druggist selling the globules said they were composed of a very common drug, and that he was often asked for it!

Another notorious baby pacifier is spirit in the form of gin, whisky, or sweet nitre. It is not, I assure you, unknown for a child to develop "gin drinker's liver" as a result of this practice. Listen to the words of no less an authority than the King's physician, Sir Thomas Barlow, Bart., M.D., who says, "Some years ago I saw large numbers of out-patients at the Children's Hospital, Great Ormond Street, and I satisfied myself that definite cases of alcoholic disease existed. The most notable example that I ever saw was that of an infant, who, when she died, was eleven months old. I watched the child during the last month of its life. She was the subject of gin-drinker's liver in the most aggravated and typical form, and this was verified up to the hilt at the post-mortem examination. The mother had given this child small quantities of gin and beer for a considerable part of its small life."

If nothing can be found to account for the cries of baby (and please note that children less than one year old are never "naughty"), and the child cannot be soothed, it is necessary that it be treated medically by a doctor—*not* by an ignorant mother or self-conceited nurse. The life of the infant is of too great value to trust its treatment when ill to amateur physicians or kindly philanthropists, especially in this well hospitalled and dispensaried country, where skilled medical advice is available to all classes of Society. Drugs are double-edged tools, and are dangerous weapons in the hands of those who are not trained in their use. Quackery is rampant, and self-prescribing is greatly overdone in this country among *all* classes, and many people possess just that little knowledge which makes them dangerous members of Society. It happened recently that I was attending a bad case of "consumption of the throat." A few weeks before death, the district visitor brought to the poor patient a circular respecting a quack cure for cancer, which the clergyman—without making the least inquiry—had asked her to deliver. If an educated, in many ways—excellent, responsible DIGNITARY of the Church of England will stoop to become a purveyor of quack literature, what can we expect from those less favoured of fortune? While the habit of promiscuous drug giving is to be condemned, this does not mean that the mother need do nothing. As already stated, a preliminary dose of castor oil or gregory powder is useful in diarrhœa, an emetic in acute indigestion from improper feeding, or a rhubarb and soda tablet when there is a furred tongue in upset stomach. These home remedies a mother may safely use, but it would generally prove more economical for her to call in a doctor early, if he should do nothing more than instruct her in the use of simple remedies.

Let me repeat my statement that the province of the mother and nurse should lie almost exclusively in the **prevention** of disease, and impress upon you the truth of Dr. Combe's statement that "wherever the mother of a family is observed to be ready with doses of calomel, cordials, anodynes, and other active drugs, the likelihood is that one-half of her children will be found to have passed to another world."

Mothers should, therefore, AVOID giving their infants all strong spirits, soothing syrups, teething powders, &c., or other injurious nostrums, which soothe (!) baby for a time simply by making it speechless from alcohol, or senseless from opium or some other narcotic.

HEALTH TALK No. 4.

WASTING—CONVULSIONS.

Wasting.—A baby is frequently brought to a doctor by a mother who remarks: "it was a beautiful baby when it was born," and the doctor often finds on inquiry that it ceased to be a beautiful baby when mother began hand-feeding it, probably on "patent" or other artificial foods. Or mothers will point to a wasted, wrinkled, little mite, and tell us that "he has never got on since he was born," and anxiously ask, "what *can* be the cause of it?" Mothers little know that Baby, Bottle, and Beauty are 3 B's which are associated with difficulty, and that it is only with patient care, persistent watchfulness, quick-sighted instincts, and intelligent knowledge of what to do and what not to do, that a "beautiful baby born" can be brought up on the bottle a bonny healthy child. For although breast-feeding is not without its trials for both mother and infant, yet it far too often happens that a healthy baby becomes the victim of wasting from the day on which it is taken off the breast and fed by hand.

Let us now discuss some of the causes of "Wasting," or malnutrition of infants, which probably affects half of all babies one time or another, in a form more or less severe. It is important to remember that the most frequent cause of wasting is improper feeding, and this fact casts a grave reflection on the present unsatisfactory methods of feeding our babies. A baby is starved (1) through not getting enough food of a proper kind, or (2) because it gets food of an unsuitable kind upon which it cannot thrive, or (3) as a result of improper feeding it develops indigestion, vomiting and diarrhoea, which are wasting disorders.

In practice we find that **insufficiency** and **indigestibility** are commonly **associated**, and it must not be forgotten that a baby may even starve with its stomach full, because that stomach might just as well be full of sand as the bread, and arrowroot, and like POISON, which an ignorant or careless mother has placed there.

In some cases there is a weakness of the digestive organs left after a serious illness like whooping cough, pneumonia, or measles. As Dr. Ashby graphically writes, "The child staggers through with an exhausted system which has no power to right itself."

Consider the first cause, viz.: **starvation from insufficient feeding**. If the little patient is BREAST-FED, we shall probably find that the mother's milk, the natural source of the infant's nourishment, is either small in quantity, or thin and wanting in some necessary ingredient like fat, which will further cause the baby to suffer from constipation as explained to you on another occasion. The remedy evidently is to improve the mother and therefore her milk, or if this be not enough, to give in addition a little cream as described under Constipation, or cow's milk suitably diluted according to age of baby. "Mixed feeding"

is **not** injurious, and when the scales show that mother's milk is insufficient, cow's milk ought to be adopted without delay; and the child completely weaned if the loss in weight is persistent in spite of "mixed feeding," and after steps have been taken to relieve the indigestion from which baby may suffer even when breast-fed. It is a mistake to wean the child without making an attempt to remedy the defect of food or digestion, and if mothers were better informed they would often be enabled and with great advantage to nurse their off-spring, instead of consigning it to crawl along the perilous paths of bottle-feeding.

Mothers, perhaps, are too ready to accept the advice of the monthly nurse as to whether they should suckle their babes, instead of asking the doctor to decide this important question for them, and his help to make their suckling successful. "Even if at first you have very little milk, do not on that account give up trying to nurse, for often the milk will come plentifully after patient and continued attempts to give the child the breast. Even a delicate woman should nurse her child, unless specially forbidden to do so by a doctor, but a nursing mother should take care of her own health, because every indisposition or illness alters her milk and re-acts on the infant." Note this—as soon as the **mother is out of health the milk suffers**. She should eat as much and as varied foods as possible, but not much meat—the cheaper sorts of meat will do quite well. Green vegetables, potatoes, beans, lentil and pea soups, gruel and so forth, are good foods for a nursing mother. She should drink plenty of milk or pure water, cocoa is good and very sustaining. Plasmon cocoa boiled with half milk and half water is especially nourishing. Tea and coffee should be taken in very limited quantities. In place of a "cup of tea" hot milk will be found a marvellous "pick-me-up." Strong spirits and wine are bad, for they pass into the milk and make the child apt to take convulsions. Stout is quite **UNNECESSARY** for a nursing mother. [N.B.—A taste for alcoholic drink is apt to be acquired by those who take it to tide them over periods of physical strain.] So too, even if a mother nursing her child is ill, she should not dose herself without consulting a doctor. Drugs also pass into the milk, and may be very dangerous for the child. The nursing mother should be temperate in all things. She should be free from unusual care and anxiety. Her baby will not thrive on milk secreted on "fret and fume."

When the **HAND-FED** baby wastes it may happen that the mother has watered the milk too much and for too long a period, or has neglected to strengthen the feed with cream, &c, as advised in our first "Talk." The fault might lie, as we suggested, with the dairyman who is cursed with poor cows, or blessed with a particularly good pump! For the milkman is somewhat akin to the Chancellor of the Exchequer, and is apt to tap sources of revenue in a way displeasing to us as individuals, and his methods are not altogether creditable to us as a nation proud of its probity, or of a rectitude which we dislike to be styled "unctuous." On the other hand, if the milk be given too strong, the curd may prove too much for baby to digest, and so it excites indigestion, vomiting, *colic* and diarrhœa. Thus you see it is not an easy thing to steer a course between the snares of starvation and the difficulties of indigestion, and it will be evident that mothers must weigh their babies regularly, and

try to acquire a little more knowledge than that which is dangerous.

The baby may not be so much starved through a want of proper food, or upset by too strong food, as from it being given some patent fraud known as "patent food," or unsuitable food containing starch which it cannot digest. In this class we include bread, biscuits, arrowroot, &c., upon which a young baby must on no account be fed.

To sum up—the use of a dirty tube-bottle, the employment of an unsuitable (too weak or too strong) milk mixture, or of a condensed milk, which is deficient in fat, or, as too often happens, the too early use of "patent" and starchy foods, will lead sooner or later to the wasting of the infant, and unfortunately the poor babies reared in damp, dirty, sunless, ill-ventilated, overcrowded dwellings, and those that are habitually unclean, cold, wet, neglected, ill-clad—are all peculiarly subject to all diseases, &c., which lead to wasting, and when wasted, fall easy victims to every disease which causes death. The excessive infantile mortality from convulsions and bronchitis is thus connected with wasting, or "mal-nutrition," as it is medically termed; and to such an extent is "convulsions" a sign of bad feeding, that Dr. Niven, the Medical Officer of Health for Manchester, uses its death rate as a test of the value of feeding instructions issued by him each year to educate mothers.

And such instructions are very necessary, for infant death rate is highest, and wasting in its extreme form is mostly seen, amongst bottle-fed babies in the poorest and most ignorant classes of the population of a large city. Food for thought is provided by the fact that **much** of this **suffering** and **mortality** is **preventable**, and that many of these cases would recover were they fed and nursed in a less heathen fashion. Our public men require yet more "waking up" to the truth that acrimonious discussion over religious instruction in schools is not the most helpful way of saving children, nor of impressing on mothers the very important fact, that most of the children who die in their first year are killed by chronic starvation caused by the want of food capable of nourishing them, or from dirty bottles or teats which quickly become a source of poison to an infant. Well might a clergyman friend write to me:—"Talking about Infant Mortality, when in Liverpool I often thought it seemed a mockery to pray to the Almighty for children who were being practically murdered. Parents coming and asking the minister 'to make a prayer' for the baby when they were either killing or starving the unfortunate little mite! I certainly think your 'Health Talks' are needed, yet, after all, a great deal must be done by **law**. We want an enlightened and stimulated public conscience." And surely no one can deny this when confronted with the terrible truths—"OUT OF 100 BOTTLE-FED CHILDREN 50 DIE DURING THEIR FIRST YEAR." "PREVENTABLE DISEASES DESTROY IN [CIVILISED CHRISTIAN] ENGLAND 72,000 CHILDREN ANNUALLY." Our Infantile Mortality is a national disgrace.

For ministers of religion to be squabbling over schools whilst this devilish "massacre of the infants" is taking place is surely like acting the part of ill-famed Nero who fiddled whilst Rome was burning! Will it *ever* occur to doctrinaire educationists that there are practical matters affecting the life and well-being of poor people which will not be solved satisfactorily

until more attention is given to subjects bearing on health and everyday duties? Will they ever realise that the development and training of the mind is powerfully—often perniciously—affected by the physical condition of the body, and that the child who starts in life handicapped with a feeble constitution, and with a badly nourished body, has but little chance of success in competition with others more robust.

The time has come, I feel, when medical men should speak strongly on such subjects, and preach, in defence of oft-times misled people, the medical gospel of salvation by hygienic works, rather than by flimsy faiths which leave the *father* child a weakling, and a man a *man* for a' that!

The feed may be correctly prepared, but the child be at fault on account of **difficulties in suckling** caused by a sore mouth, a hare lip or cleft palate, or a blocked nose, which prevents baby feeding and breathing at one and the same time. Mothers will be relieved to learn that tongue-tie is very rarely an obstacle to suckling, for my experience would lead me to believe they think otherwise. Dr. Hutchison relates a case where the "leech-bite" form of teat had prevented the infant sucking sufficient milk from the bottle, and had caused a strong baby to waste from sheer starvation. You will now understand the importance of taking care even in little things which concern the baby and its bottle.

Consider the next cause of **Wasting**, one that is closely related to improper feeding as already explained, viz.: **Indigestion** with its attendant colic, **vomiting**, and **diarrhœa**. Cow's milk has been given too strong for baby, or "starchy" food, or something off the parent's plate, or some other indigestible stuff which the child ought not to have had. Whatever it is, it is not digested by the stomach, and there it remains rubbing baby's inside like sand paper, or lying in it as heavy as lead, until it is sicked up, or passed out by the scouring action of the bowel. In large London hospitals we see many babies brought by mothers who reply to our question "What's the matter?" the simple descriptive words, "Upwards and downwards!" And it does not require a vivid imagination to picture nature's scavenger hard at work inside, unloading stuff from a baby which was never designed to carry the many cargoes which ignorant people delight to pack inside it!

If this state of things is allowed to go on unchecked, a chronic and *inflammatory* indigestion, with vomiting and diarrhœa, will be induced, which may lead not only to extreme wasting, but to other complications of a fatal kind. And I urge you not to forget the possibility of a child's stomach being permanently damaged by months of careless and improper feeding, so that when a doctor treats such a case, he speedily finds that all his best medicines and his most carefully devised foods are of no avail, and that nothing short of a new inside will profit his wasted and ruined patient. In spite of everything the baby surely continues to waste. The face becomes earthy tinted, lined, and shrunken, and the fast filming eyes more deeply sunken and beseeching. The cold, lifeless, ill-fitting skin hangs in wrinkly folds on the arms and thighs, and the whole body constantly exhales a sickly smell of sour milk, or advance suggestion of the certain-to-come post-mortem decomposition.

Then there is the starving ill-fed waif of the "unfortunate" woman who repines in poverty. To quote the appealing description of Dr. Ashby—

"Who has not heard the pitiful story again and again of a woman, without means or help, left with a tiny infant to rear? She tries to earn a scanty living by working long hours at a sewing machine, or in washing flights of warehouse steps, supporting life in a desultory sort of way, on tea and bread and butter. The infant is 'out-to-nurse' during the day, and fed on boiled bread and stale cow's milk; while the mother, weary with the day's work gives it the breast at night, and has to spend the greater part of what should be her sleeping hours in 'hush-a-bying a baby which won't be hush a bied. No wonder that it whines and wastes, that it is a misery to its mother and itself, until 'the curtain falls on its unnecessary life, and all is well with it again.'"

Mothers when tempted to forget their infant or to play the doctor—or to allow others equally ignorant and unqualified to do it for them—should consider that careless mothering and quacking (or medically ill-treating) an irresponsible child is a form of "CRUELTY TO ANIMALS," against which the poor thing cannot appeal, and from which, therefore, it should be protected by law. For a slatternly and "quacking" mother not only aggravates the distress, but perpetuates the disease, and in this way inflicts unnecessary suffering which it is the great privilege and honour of members of the medical profession to relieve, and against which the maternal instinct would rebel were mothers less ignorant of the wrong they do, and the ways and means to right it. We look after stray dogs, unbefriended cats, and ill-treated horses, but "the wail of thousands of babies goes up to heaven year after year unavenged!" Surely British mothers require rousing, and our public men enthusing, to take some part in a **revolution of methods of inspection, supervision, and instruction**, which will stem this tide of national shame, and offer some "atonement for a long, long record of crime against childhood."

For I am convinced that many children *are* murdered by mothers or "baby farmers" who are criminally versed in these subtlest methods of infanticide. Read the reports of coroners' inquests, and this is the sort of thing you find:—"A.B., who nursed a child on whom an inquest was held at R. yesterday, said she had allowed it to eat the same things that she ate, including ham and potatoes. The Coroner: 'That is the way children are killed—improper feeding.' Mrs. B. added that the child had a fit, and as she did not know what to do for it, she sent for a doctor. The Coroner: '*You went so that you might get a certificate, I suppose?*'" And the Coroner was quite right.

A time is coming when the coroner and medical man will co-operate to stem this tide of infanticide. "Upon any infant dying from a disease at all commonly associated with improper feeding or want of hygienic care, an inquest should be held to determine in each case whether these causes were or were not a prominent feature." I am delighted to know that the S.P.C.C. is moving in the matter, and soon, perhaps, we shall find that our Education Authorities will realise the danger haunting the melancholy truth that "There are few girls . . . and still fewer women who do not think that by virtue of some instinct of their sex, and without any special thought or training they are quite capable of bringing up an infant." Needless to say I am in sympathy with the worthy alderman of a Lancashire borough who exclaimed, "What

we want is tachers what'll tach the whowle truth!"

In another class of wasting a **grave disease** exists in the child in the stomach or other parts which sufficiently explains its shrunken state and "cancerous" condition; and here again the importance is enforced of mothers seeking medical advice early to discover a cause for disease. Tuberculosis, for instance, is a very important cause of wasting, and sometimes the only evidence to a doctor of the existence of consumption.

Finally, there is a group of cases in which **no cause can be found** for the wasting. The child will not and cannot thrive owing to some inability to digest and absorb the food it is given. It remains a convincing example of the medical maxim that we live not so much on what we eat, as on that which we digest, absorb, and use.

This form of what we may call *well-fed* wasting is most commonly seen during the first six months, and the infant either improves or succumbs before the end of the year is reached. The point to remember is, that **DRUNKEN** and **DISEASED** parents may transmit this weakness to their children, and that **NATURE** may be thus **STRUGGLING** to "fire out" the unfit.

After presenting in outline the causes of wasting, it may be well to review the food treatment of it at greater length, although, as you will see, the treatment of the one great and important class of preventable wasting **consists in relieving the starvation, and in stopping the waste from vomiting and diarrhœa.**

Once more I emphasize the vast importance of searching for the cause of your baby's ill-health. For once having discovered the cause we have gone far to cure the disease, especially when that cause can be so easily removed or remedied as faulty feeding. The mother's or nurse's intelligent and appreciative co-operation with the doctor is a great assistance in the treatment of all diseases; but in no sphere of minor medical work is it more imperative than in the treatment of these "food disorders" now under discussion. A working faith, based on sound knowledge and real understanding, must dispel those senseless prejudices and perverted instincts, which thrive on ignorance and an unwholesome suspicion of medical men and their methods. My object in these "Talks" is to strengthen this faith; not so much to convey information which might serve to create amateur doctors, but rather to instruct mothers as to the **VALUE OF KNOWLEDGE** and the **DANGER OF IGNORANCE**, to rescue the perishing rather than weep over the perished.

I urge you to remember that in the **matter of wasting, prevention is of first importance.** Unfortunately it happens even to-day that many women are hopelessly ignorant of how to feed and rear a child, and consequently they commit serious errors which are almost inexcusable, perhaps criminal, because they might so easily have been avoided, by mothers and nurses being better informed as to the correct methods of feeding and general management of infants.

The food treatment of wasting from starvation, indigestion, &c., has been discussed in our other "Talks" under their respective headings. It is evident that if a baby is not gaining in weight, and there is no indigestion, or loss from vomiting or diarrhœa, which will account for it, that the food ought to be suitably strengthened in all ingredients.

If the curd of the milk has been greatly reduced by adding water, and the infant though digesting is not thriving, but is pale and pinched, the little curd (or "proteid") food it is getting may be supplemented by the addition of $\frac{1}{2}$ to one teaspoonful of raw meat juice to each feed.

But how must we feed the baby who without any obtrusive signs of ill-health or indigestion, vomiting or diarrhœa, continues to waste in spite of every attempt to feed it with profit on a fresh milk diet? Here we are driven to try peptonized milk, at first perhaps diluted and fully predigested, then gradually reduced until we have educated the maybe ill-developed stomach to do more of its proper work, or have rested this weary worker to put forth those renewed digestive efforts which will result in baby thriving and gaining in weight in a normal manner. In such cases also a good predigested, malted "patent food" used with milk suitably diluted, is of a certain value, because as previously described it aids the digestion of the milk, and contains certain ingredients which the stomach can retain and digest.

A "dried milk" food may be tried with water alone, but take care not to push this artificial feeding too far, else the cure of one disease may result in the supervention of others equally serious. An adult does not continue to feed on beef tea and "slops" because he has dieted himself for a few days on account of an attack of indigestion! So after having made our ill and wasted baby better, and fatter, it becomes necessary for us to retrace our steps as quickly as possible to more natural feeding, remembering that **no patent food should be continued longer than is absolutely necessary**, and that a baby thriving well on such a food, would probably thrive—in *due course*—even better on a fresh milk diet. Fat in the form of fresh cream, virol, or cod liver oil, should be added to the diet as soon as baby can digest it—an ability tested by trial feeds or doses of small quantities gradually increased—because patent foods are deficient in this essential and vital ingredient which warms, nourishes, and fattens. And to avoid risk of scurvy, as well as to provide a little agreeable change for baby in the form of dessert, 2 or 3 teaspoonfuls (or more) of orange juice should be given daily in all cases where predigested or peptonized foods have been used for more than 2 weeks. Raw meat juice is also of value in the same circumstances.

I would remind you here that patent or artificial foods of any description ought to be reserved for SICK BABIES, and not given to those that are well, who *therefore* have no need for them. It is the early, indiscriminate use and senseless abuse of such foods which justifies the statement that probably many cases of fatal and puzzling wasting are due to a complete breakdown of a stomach which has been starved, sorely tried, or even flogged to death by the injudicious, and unnecessary use of some injurious infants' foods during the first few months of life.

A good condensed milk (sweetened brand—Nestlé) is sometimes of great service in the feeding of these wasted infants, who can often take much sugar though little fat, and serves to bridge over the difficult period which must elapse before the little patient has sufficiently improved to be fed with success on fresh milk mixtures.

Recently the addition of sanatogen to fresh milk has been tried with much success in the feeding of such cases. The method adopted is to

take half a teaspoonful of sanatogen and mix it (a powder) into a paste with water, then add to the water and cow's milk necessary to make up the feed, and thoroughly mix in the feeding bottle. It appears to be well suited to the needs of infants who are unable to digest ordinary milk or its, more or less, artificial substitutes.

Into our third group falls a residuum of wasted babies it seems impossible to rear by any artificial means whatever. They demand a **wet nurse** or a whey mixture—whey skilfully fattened or strengthened with cream, white of egg, raw meat juice—or even our friend, the enemy once more—one of the predigested infants' foods made up with whey, to be used as before **only on the order of those who understand the art of infant feeding.** Egg-water, sugar, and cream, mixed in suitable proportions, make another valuable artificial mixture which resembles, in its chemical nature, human milk, and may prove nutritious in wasting disorders when everything else fails.

In very severe cases of wasting or malnutrition from any cause, alcoholic stimulants in the shape of brandy or "sherry whey" are absolutely necessary to prevent, or cure, complications in lungs, eyes, or other parts. Indeed, it has been said that "sherry whey" is just one of the things we could not do without in the treatment of diseases of infants.

The dry wrinkled skin of the wasted mite might be rubbed with cod liver oil twice a day. In this way some nourishing fat may be introduced into the system, instead of giving it internally, as fat in any form is so apt in these cases to provoke indigestion, and therefore to still further weaken baby's delicate stomach.

Persistent wasting in a baby is a trial for the doctor and the friends, for no one can quite tell until the end whether some food will be discovered which will succeed in satisfying the fastidious tastes of our emaciated weakling. At any rate, if we do not succeed, let it not be because of our ignorance or indifference, and let us have no cause to regret that had we not tampered with baby's stomach, had we not sorely tried its digestive strength during the first few months of life by foolish and improper feeding, our baby would have been spared to us, instead of **wasting** to death, in spite of a wealth of good and suitable food which we could now offer it.

In what way are **convulsions** or fits connected with wasting or improper feeding? I will try to explain to you, and then you may be spared the distressing sight of your child twitching in horrible contortions, or maybe help to save other children from this convulsive suffering. Bad feeding causes chronic indigestion, and indigestion as you now know results in the production of poisons which are absorbed into the blood, and so alter and impair its nourishing powers, that not only does the child waste, but it develops rickets. This is a disease which, as you will be told, has very injurious effects on the brain, and renders a child so "weak in the head," that it is liable to have a fit from a slight cause (like the cutting of a tooth) which would have no effect on the healthy youngster. Rickets is, on this account, the most important indirect or predisposing cause of convulsions. It is said that the great majority of fits seen in normally developed, healthy-born babies between six months and two years, occur in those the subject of rickets.

It is very important for you to remember this, because it is the only condition responsible for fits which we can REMEDY BY IMMEDIATE MEDICAL TREATMENT. It will be evident to you that the sooner the fits are stopped the better for the child, for it has been shown that repeated convulsions may cause permanent injury to the brain: an injury manifested by the feeble mind of the shiftless lad with the daft, vacant stare, and the halting, stammering tongue—the butt of the school with the brain of a fool. Let me earnestly impress upon you this fact,—**we can cure** the convulsions when rickets is at the root of the evil, for the tendency to fits rapidly disappears under the treatment which cures the rickets and commands “Peace, be still.” I need not tell you that the settling of a permanent and fit-less calm over the hitherto storm-tossed brain of the little sufferer, is a source of great satisfaction to the doctor as well as intense delight to the anxious mother.

Then there is the worrying pain of griping and colic which dances attendance on indigestion, in addition to and aggravating the weakness of brain and body the result of wasting or rickets.

Even if the child were born hearty and strong, and inherited no *nervousness* from hysterical mother or brain-wrecked father, or from more or less remote nerve-stricken ancestor—another very important liability-cause of convulsions, for “the sins of the fathers” certainly *are* visited “upon the children, unto the third and fourth generation . . .” DO NOT FORGET that the weakened, ill-nourished brain of the waster is but a trembling, ill-balanced structure in its mould of the skull, which can be easily shaken by the shocks of colic, or the discomforting drum-tightness of a bellyful of wind.

The convulsions of the newly born are most common in infants who have been artificially fed from the first, and who are carelessly given improperly prepared cow’s milk which sets up flatulence and griping, and sends out green and curdy, offensive and fit-exhaling stools. And let me remind you that dirt infection may be responsible for what I might term “dirt indigestion.” Mother’s milk is pure and sterile, natural and undefiled. Cow’s milk as usually consumed is certainly not sterile but rather unpleasantly inclined to be very much alive, and often is impure, poverty stricken, dung manured, or faked with antiseptics.

Apart, however, from these disabilities, and the difficulty some young infants have in digesting cow’s milk, there is a greater risk of infection by the mouth from the bottle and sundry sources than when the baby is fed from the breast. The same hands that attend to the mother’s diapers and the infant’s diapers *prepare* the *food* and *feed* the infant, and the nurse often puts the teat of the feeding-bottle into her mouth before feeding, indifferent of poisons conveyed from decayed teeth or something worse; to soothe a cross child or to tempt it to suck, the “dummy comforter” or teat is daubed with sugar which may have been long exposed to dust and flies in a dirty basin in some ill-ventilated “living room”; or an INFECTIVE “dummy” is promptly pushed into the mouth of the crying babe direct from a dirty floor on which perhaps it has fallen! How careless mothers and nurses are in many respects must be apparent to all. “I often notice when an infant is brought to me that the feeding-bottle containing the baby’s food is carefully wrapped up in a spare diaper,

the latter being handy in case of necessity, and at the same time fulfils the useful purpose of keeping the bottle warm. Surely no well-trained nurse would be guilty of such an abomination." (Dr. Ashby).

Then there is the discomfort and irritability set up by sore gums, or "thrush," or septic ulcers in the mouth, the combined effect of neglect and dirty feeding, to be followed in the time of teething by "teething fits"—a term beloved of mothers, for it suggest to them a pleasing and quite satisfactory explanation of the fits, and affords them a very present help in this time of convulsive trouble and unnerving anxiety.

Now I would impress upon you the fact that a young baby is very sensitive to infection of any kind, and is fearfully intolerant of poison in any form. It matters not whether it is imported from without by the ways and means suggested, or manufactured within by the decomposition of milk curd or "patent" rubbish in the intestinal cesspool, from which by aperient we expel the green or pasty, lumpy, foul-smelling stools which are "sniffy" of the stuff which is responsible for the "*intestinal intoxication*" of the ill-fed infant. This condition sufficiently explains the griping and the colic with the distended belly, and assists you to understand why gastro-intestinal (stomach and bowel) disorder is the COMMONEST CAUSE of fits from direct irritation of the infant, and why it is so often aided and abetted by its twin brother and fellow sinner—Rickets.

By this sidelight thrown on the origin of fits, you will better appreciate the need for care and cleanliness in all things appertaining to baby and its feeding, why it is so very important to wash out the baby's mouth night and morning, and why you are so strongly advised not to use a "comforter" which can thus readily become a "convulsion exciter," and thereby "imbecile inducer."

Of course there are many other causes of fits, but with these a doctor is more immediately concerned than a mother. It may, however, be well to inform you that the fits may depend upon some serious brain disease which a doctor can discover and remedy. They may prove to be real though slight attacks of that terrible disease, EPILEPSY, which is frequently associated with imbecility or mental feebleness of a more or less progressive nature. Such fits, though possibly the forerunner of epilepsy in its most explosive form, may be very slight, and seem to be nothing more than passing faints. If, however, they recur *without* any obvious cause, or *with* any noticeable mental peculiarity or backwardness, the outlook becomes a serious matter, and such a child will require very judicious handling indeed by both mother and father.

Again, convulsions may be but a passing sign of some acute disease like scarlet fever or measles. Many young children instead of having a rigor or "cold shake" at the onset of an acute illness have actually a general convulsion. And like vomiting, "fits" may be **real** or **sham**. A doctor is often told by an anxious mother that she is sure her child has "inward convulsions," or "inward fits," or "screaming convulsions." Such fits are often sham likenesses, and have nothing to do with the genuine convulsion. Many children under the irritation of teething or colic will wince and writhe, or exhibit some twichings of muscles, particularly muscles of the face, which the fond mother is apt to suppose are the twitchings of true convulsions. They are not! But just one

word of warning, a nervous, excitable, twitchy child may, in this way, indicate a tendency to "fire off" convulsions, and therefore calls for particular care in feeding and regulation of bowels, as well as protection from "starts," undue driving at school, or unwise correction at home.

What I wish to emphasise specially in this "Talk" is the need for mothers to understand the cause and nature of the PREVENTABLE FIT; convulsions which are connected in their coming with the horrors of indigestion, diarrhœa, wasting, and rickets. For these disorders and diseases are, in a large measure, *fit fetchers*, and come at the order of many a poor, ignorant or indifferent mother, who would probably shriek in righteous anger were an insignificant blow struck at the head of her darling child by the chastising hand of a well-meaning teacher!

It cannot be too strongly impressed upon mothers that young children can be much **more easily protected from disease by careful feeding and management than they can be cured when disease actually occurs.** An enormous number of children die every year from diarrhœa, wasting, or convulsions, and it is quite certain that if they were fed and reared according to the simple directions given to you in these "Talks," and were not given sour milk and other unsuitable food, and, at the same time, they, their clothes, and their homes were kept clean, the **majority of these infants would not die.** "It is wise to bear in mind constantly that children are frail in health, and easily sicken and die in measure as they are young [or bottle-fed]. Immediately after birth the slightest thing is enough to injure their health and cause them to die. It is not until they are weaned that they really commence to become robust [and hardy]."

In conclusion, let me say a few words in favour of FRESH AIR, and to advocate its use. In all forms of convulsions, especially those associated with rickets, OPEN-AIR TREATMENT is successful. The same treatment has met with great and gratifying success in consumption, pneumonias, whooping cough, and many other chest or general diseases. The mortality from bronchitis or pneumonia, so high in wasted children amongst the poor, results largely from poisoning by foul air in hot, stuffy, ill-ventilated, over-crowded rooms. The oxygen or ozone of the open air is a famous blood purifier, which destroys or sweeps out of the system impurities which would accumulate and kill—*especially* the sickly child with tissues as sensitive to disease as the photographer's plate to light. Study and adopt this excellent practical piece of advice in the pamphlet issued by the mayor and medical officer of health of Huddersfield:—"Mothers waste a lot of time in wheeling a perambulator about, unless it is done as exercise for the mothers. The baby will get just as much good if it is put out of doors on the "door stones," or in a bit of garden, where there is fresh air and sunshine, just taking care to avoid direct exposure to sun and wind; it is not even necessary to have a perambulator, put the baby out of doors in a clothes basket nicely covered and sheltered and let it have full measure of fresh air. Only do not put the basket near a sink or a drain trap."

Babies need pure fresh air—indoors and outdoors—even more than grown people: those who have most of it will be least liable to **bronchitis**, and will sleep the best.

HEALTH TALK No. 5.

RICKETS—SCURVY—PATENT FOODS.

Rickets.—On account of the deplorable inability or unwillingness of mothers to suckle their children, the neglect of children owing to women working in factories or indulging in “drinking,” and the want of pure, fresh air and sunlight combined with unhealthy conditions consequent on, and inseparable from, overcrowding in insanitary areas in large towns, it happens that more than half the children seen in the out-patient department of our large hospitals exhibit the disease in a more or less marked degree. Thus it happens that Rickets is the most common, and in its indirect results, the most fatal of all the diseases which peculiarly affect children. Mothers should remember that Rickets is in a large measure a *preventable* disease, and that a rickety child bears true witness to the poverty, neglect, or ignorance of its parents or guardians—not excluding those municipal or educational authorities which have failed to take steps to provide pure milk for poor people’s children, or to devise a better system of education than that which allows a girl to become a mother without a scrap of knowledge to help her to care for her baby, or prepare her to face those parental responsibilities which are so heavy and exacting.

One of the two great causes of Rickets is *improper feeding*; the child is given a deficiency of fat and “curd” food, or an excess of starch or sugar, or maybe—and worse still—both combined. This joint starvation of baby in necessary and “vital” food elements, with slow poisoning of the ill-fed mite by unnecessary and vicious food (?) stuffs; the effects of wrong feeding aggravated, as is so often the case, by neglectful and *faulty upbringing* of the child in a dirty and unhealthy home; all this means diarrhoea, Rickets, *death*. Now the fact is explained that Rickets is so liable to occur in hand-fed babies, and most frequently in those fed on artificial or “patent foods,” which, as you have already been told, are short of necessary fat and “curd,” and strong in sugars and (often) starches which fairly breed diarrhoeas, rickets, and other food disorders in babies.

Rickets is a disease which shows its effects principally in the limbs, but which, nevertheless, affects all other parts of the body. The bones are softened and liable to bend under the weight of the body, so that walking, which is delayed, should not be encouraged but rather prevented (with splints sometimes), else “bow-legs,” “knock-knees,” “curvature of the spine,” and other deformities may appear—*perhaps not to disappear* even under the best treatment.

Other signs are—the “rickety rosary” or row of knobs on the ribs down the side of the chest; “pigeon breast” with its liability to all lung diseases; enlargement of the bones about the wrist and ankles;

the "hot-cross-bun" head, with a hole in it in front which does not close, a look of "water on the brain" about it, and a tendency to fits and other brain troubles; "pot belly," with its diarrhœas and pains; the teeth that are slow to come, and are mis-shapen and rot quickly when they do. Even this picture does not exaggerate the troubles of the pale, flabby, unhealthy looking, semi-paralytic child which suffers from well developed Rickets, that has, perhaps, revealed itself at first by the suggestive sweating of the head at night, with restlessness and a habit of kicking off the bedclothes!

The child is usually a year or eighteen months old (perhaps more) before these symptoms and signs are sufficiently marked to impress the mother, and to arouse her fears that all is not well with her child. Rickets is insidious in its onset, so unfortunately the child may appear to be well and plump, and no suspicions be aroused of disease lurking in the fat form of, perhaps, the winner of a "first prize" at a "baby show"!

The disease may be so masked by deceptive appearances of health, that only the trained eye of a doctor can detect those early signs of Rickets which it is so important to prevent, and to treat as soon as possible, *i.e.*, in the *beginning*, so as to ward off permanent deformity and weakness. The province of the mother is in the *prevention* of disease, and a mother can only play a part in this who understands slight ailments, their causes and means of prevention, and their true significance and relation to constitutional disorders which cannot strike the child without wrecking some part of its delicate structure. The treatment of disease lies essentially in the doctor's department, and if the mother usurps the medical man's rights and privileges in this respect, by ignorantly quacking her child with "patent foods," grey powders, teething powders, soothing syrups, cough cordials, and other abominations of fraudulent advertisers whose lies *foul* newspapers and *religious* periodicals, the likelihood is she will lose half of her children, or even drift into that class of mothers who have had ten children and buried eight! It is to be hoped that a time is coming when mothers will also recognise the importance of seeking the doctor's aid to PREVENT disease, and that they will pay a doctor to keep their child well or protected from unnecessary suffering, by submitting its delicate mechanism to a periodical overhauling by the medical engineer. The human body is more finely complicated than a steamer, or even a tram-car which is favoured with a daily certificate of health! and although old, worn out, cracked, or imperfect parts of our anatomy cannot be renewed, they are yet often capable of repair or lubrication in the early stages of disorder or disease.

Remember that "the child is father to the man," and that a damaged child means a defective or deformed adult. A good seed under good conditions brings forth good fruit; and although nature is anxious to repair damages, do not forget that a scar or permanent defect may follow an injury or disease. The causes of Physical Deterioration must therefore necessarily be those which operate injuriously upon the child in the different stages of its existence. As a series of fits may knock the sense out of a child and produce an imbecile, so repeated blows struck at a child by neglect, or careless feeding, may knock the health, and strength, and shapeliness out of the adult product. A large proportion

of children who suffer from convulsions between the ages of five months and two years are rickety, and by way of rickets are apt to come stunted brains and sluggish intellects, while epilepsy, insanity, and allied conditions are largely caused by injury thus inflicted on the sensitive nervous system of the impressionable infant. Dr. Shuttleworth writes in respect of his experience of feeble-minded children in London schools, "Rickety skulls with insufficient room for the growth and expansion of the brain were met with in pauper children, and sometimes among the children of well-to-do families who reared them on patent foods and the feeding bottle." And on the bodily side it appears to be proved that inadequate and improper dieting (leading to rickets, &c.) during the periods of infancy and early childhood is the chief cause of physical inferiority in later years. Dr. Niven is doing good work in this direction.

When the disease is properly treated at an early stage by suitable dieting, etc., the cure is often rapid and complete. Later, when the disease has become firmly established, and irremediable mischief has been done—bodily deformities expressing the extent of bone disease—a real and complete cure can seldom be effected. Medical treatment may have to be assisted by surgical operations on the bones, but the combination of physician and surgeon cannot always undo the damage inflicted on the child, and prevent the stunted, bow-legged or knock-kneed, or otherwise deformed, and incapable adult bearing the stamp of the rickety child which has simply grown older.

Rickets caused thus by improper, unwise, or insufficient feeding, bad air, neglect, &c., is undoubtedly one of the two chief causes of the stunted growth and weak physical development of our adult poor in large towns, and, therefore, must be largely responsible for the moral and physical degradation, incapacity, and consequent poverty and helplessness of the "out-of-works" and "ne'er-do-weels" which swell the ranks of the unemployed, and crowd the wards of our infirmaries, and the palaces of the pauper.

"The proportion of persons with normally and well developed chests suffering from serious lung disease is relatively small. This is so well known that in the hospitals for diseases of the chest the deformities due to Rickets are almost as common as the consumption, bronchitis, asthma, and like diseases which it is their business to treat.

"Rickets is probably the commonest cause of genuine *incapacity*. Among the degenerates who never really work, and who spend their lives in and out of prison and workhouse, the signs of the disease are most marked. These individuals are incapable of any sustained effort, and the reason is to be seen in the laterally compressed head, the flat vertex, and the 'bossy' forehead." The moral to be grasped from this is the supreme importance of preventing infants and young children being reared in such a manner that sooner or later they must constitute a permanent charge on the public purse in hospital, workhouse, infirmary, prison, or asylum, or become an indirect loss to the State through sheer physical incapacity to exert their Nature's best. This indirect cost of national ill-health or mixed infirmity is almost incalculable. Just for one moment think of the undone work and, therefore, the unearned wages of the sick, the infirm, the degenerate; of the loss of economic

values where a person can earn nothing, yet become an expert at committing crime and thus pledge himself to prison and punishment; of the early deaths of those who take from human society so much wealth-earning capacity and potential power of redemptive intellect; of those who are neither actually sick nor really well, who can never scale their maximum weight of pushful energy or agreeable vitality, and who thereby are debarred from attaining to "that high knowledge and great strength" which, as Emerson says, are within the reach of every man who "UNFLINCHINGLY ENACTS HIS BEST." All of us know the class described by Sir S. W. Richardson as the "Morituri," the always-ailing and about-to-die; those who must face life's conflicts and bear its crosses with a falling spirit, a faltering courage, and a back not made for the burden. Thus mentally stricken and physically inefficient, many a human derelict drifts aimlessly and shiftlessly about life's ocean, wearily awaiting the tragic plunge which finally overtakes the human wreck, Hope-less and Despair-full, forsaken of man and seemingly of God.

The care of the child is essentially a mother's care. To her is deputed the exacting and responsible duties of motherhood. "I am afraid," says a lady writer in the *Spectator*, "that motherhood has not the meaning or sacredness it used to have, either for men or women. . . . The nation needs men. . . . Men make the world but women make the men. If we women have pride and patriotism it should help us to fulfil our work and destiny. Do not let us have our little Japanese sisters pointing the finger of scorn at us, and saying 'The women are women no longer, and soon there will be no men.'" To raise the race education must be real and earnest, individual and material, instinct with the spirit of self-sacrifice and mutual help, serving as a Lamp to Lighten our Darkness on earth, and to reveal to us *that* SAVING KNOWLEDGE which will protect us from evils of which we now know nothing—evils wrought for want of thought, and lack of knowledge.

Within the past few years there has been a great movement away from the Churches. Men have realised the pressing need of social salvation, physical regeneration, intellect culture; and Heaven looms less large on our mental horizon than it did to our forefathers. This earthly—rather than heavenly—minded movement I welcome as one calculated to check much spiritual waste, and to encourage material thrift and intellectual progress. A system of education which exalteth a creed and a sect rather than the mind and the man, and that is designed for the glory of church or chapel rather than for the salvation of man and his country,—is doomed as damned. I appeal to you in the triple capacity of man, citizen, and preacher in Public Health, FOR THE CARE OF THE CHILD, AND URGE YOUR NEED FOR KNOWLEDGE TO HELP YOU TO PROTECT IT FROM HARM DURING ITS NIGHT OF INFANCY, and I would ask you in your religious observances not to forget the tabernacle of the body, and the sanctity of the home, for in the words of Mr. Moody, "*The home was founded before the Church, and you in Britain stand more in need of homes than you do of churches.*"

As a first step in the **treatment** of Rickets, the doctor will insist upon the mother altering the child's food. Wrong feeding is an important cause, therefore this cause must be removed, and the feeding of the

little patient corrected. This means the stopping of all "patent foods," and their substitution with "living" food which contains more fat and the curd element of milk, and less starch or other stuff of a poisonous nature which baby cannot digest, and upon which, therefore, it cannot thrive. During the first 9 months the baby should be suckled if possible, or fed on cow's milk suitably prepared as described, to which fat must now be added in the form of fresh cream or virol. Later, the greatest care must be taken to give the child properly prepared, nourishing, and easily digested food. The diet should consist of cream, cow's milk and things made with it, as bread and milk, milk puddings, porridge, etc.; and when the child is more than a year old, gravy, to which bread crumbs, potatoes, or other cooked vegetables may be added; raw meat juice or under-done red meat scraped down; eggs, lightly boiled or beaten up in milk, and a little bread and butter. The juice of an orange three times a week is excellent. About the end of the first year, cod liver oil, cream, and raw meat juice are the most important special foods in addition to the general suitable foods as described above. Feed the child regularly, and give nothing between meals. Do not give a baby sweets, biscuits, buns, cakes, pastry, patent foods of any kind, ham, salt beef, salted or smoked fish, &c. Do not let your child "live as we do," or allow it to enjoy a "tasty" supper varying between a "bloater and a halfpenny saucer of pickles"!

The doctor will provide you with a diet sheet of meals of the kind recommended, prescribe treatment which will put baby's *stomach*, &c., in the best condition to digest its food and cod liver oil, and to correct other parts of the system which are out of order. You can do much to assist recovery by looking after the child's clothing—especially at night, and by using freely those cheap and grand restoratives—FRESH AIR and SUNLIGHT, SOAP and WATER. The child should be taken out when the weather is fine, but not allowed to stand or walk without doctor's permission.

Scurvy Rickets.—A more scientific, but for our purpose less descriptive name for this disease is **Infantile Scurvy**. It is a much rarer disease than Rickets, although related to it, inasmuch as it is caused by faulty feeding, and often combined with it, as the name would suggest, and the cause lead us to expect. The Scurvy of infants is a disease of the same nature as the Scurvy of adults, so common years ago in sailors who were deprived of "fresh" food when on long voyages. Infants affected are usually between 10 and 18 months old. The little sufferer may look pale and "poorly," fretful and "rickety"; but *the* distinctive symptom of Scurvy is the tenderness of the bones which makes the child scream on handling, and even afraid of being touched. There are also tender swellings about the body, due to "bleedings" beneath the skin or on the bones, as if the child had been hurt or bruised. The bones are brittle and break easily, and the doctor will advise the mother how to prevent such an accident which may result from very trivial causes. The gums are swollen, "spongy," of a livid colour and easily ulcerate. Beware! anæmia (pallor) and bone tenderness in a baby mean DANGER, and call for a change in the feeding of the baby. The treatment is practically the same as that of Rickets. Wrong feeding must be righted, which means that (1) all patent or cooked foods

must be stopped, and (2) an abundance of fresh "living" food given in the form of pure unboiled milk, cream, raw meat juice, and fresh fruit juices. A teaspoonful or two of orange juice (or lemon juice if preferred) should be given in an equal part of sweetened water, an hour before each meal. A "Scurvy" baby 6 months old will take the juice of two oranges a day with benefit and relish. A famous dish for a child over 9 months old is "potato soup," made by scraping off from beneath the skin of a baked potato the floury part, and beating it into a cream with a breakfast cup of warmed, sweetened milk. Raw meat juice is a valuable food which should also be given in such cases, and seeing that "Infantile Scurvy" has followed prolonged use of sterilised (boiled) milk, it is advisable to give children so fed a teaspoonful or two of gravy, especially the red "rare" gravy direct from the meat, as a little change for dinner. When the child is over 6 months old, a delicate mash of gravy, potato or a *tender* part of a fresh vegetable may be tried if baby is pale or tender. The cure effected in this disease by a change of diet is marvellous and seemingly miraculous, and affords the most striking example of a "food cure" in the whole range of medical treatment.

I will conclude these "Talks" with a few words on "**patent foods**," against which so much has been said, and the use of which—on medical orders only—has been indicated in the different disorders of digestion we have discussed.

The various foods on the market may be classified as follows:—

- I. (1) Condensed Milk—from "whole" or "skimmed" milk, &c.
- (2) Dried Milk with Cereals (grain like wheat, &c.)—starch *completely* converted (or digested) into sugars; Allenbury's Food Nos. 1 and 2; Horlick's Malted Milk.
- II. (3) Cereal—starch *completely* converted; Mellin's Food.
- (4) Cereal—starch *partially* converted; Allenbury's Food No. 3; Benger's Food.
- (5) Cereal—starch mostly *unchanged*.

The Foods of the above firms are good. I recommend them. My remarks chiefly apply to the cheaper, starchy foods not mentioned.

It has been pointed out that anything aside from breast milk that is put into an infant's stomach is a "foreign" and unnatural substance which may act as a poison or irritant, and cause indigestion and sickness, colic and diarrhoea, convulsions and wasting—DEATH. Our baby, bear in mind, is not a vegetarian; mother's milk is a food purely animal in nature, and contains HEALING and PROTECTIVE medicinal qualities as well as food properties which make it immeasurably the best "food for infants." The non-milk patent foods are, on the other hand, largely vegetable in composition, nearly all contain wheat flour with its inefficient and deficient proteid and fat, and many of them unaltered and unnecessary starch which the young and toothless infant is quite unable to digest. Moreover, instead of protecting the child from infectious and other diseases by supplying it with certain *living* and *vital* elements of food, they tend to act as poison and induce diseases like rickets and scurvy, with all their attendant evils and distressing accompaniments. Figures showing the death-rate among hand-fed children according

to the kind of food used have been compiled by Dr. Howarth, of Derby, which support these statements. It was found in his inquiry that the death-rate among children reared on bread, arrowroot, and other starchy foods is exceedingly high, being 252 per 1,000. The starvation of the baby, with its *diminished vitality*, or its infection with summer diarrhœa or other disease, resulting from the use of a cheap condensed milk or one contaminated in the home after opening of the tin, accounts for the disgraceful death-rate of 257 per 1,000. Children fed on the various patent foods (most of them starchy) died at the rate of 220 per 1,000. Most children survived who were fed on malted, non-starchy food mixed with milk, or who were fed on cow's milk and water alone, yet these died at the average rate of 150 per 1,000. The deaths in this last group are largely explained by home contamination (through bad storage in dirty places) of perhaps poor and impure cow's milk, and through mistakes in feeding or in the preparation of baby's feeds, the result of ignorance—of mothers not knowing and not caring to know.

The different ingredients present in these foods should be considered—they are starch, sugar, fat, milk curd, or other "proteid." **Starchy** food in no way resembles breast-milk, and is unsuitable for the feeding of children under nine months. Therefore another commandment has been given by medical men to mothers, "**Thou shalt not give thy baby any starchy 'infants' food, bread, biscuits, arrowroot, corn-flour, etc., until the child is eight months old**—except by doctor's orders." This order should appear as the "handwriting on the wall" of every nursery or room where artificial feeding is conducted.

The whining, wasted, wretched, dyspeptic and starved, starch-fed children are known in some hospitals as "cornflour" children. It has been said that "*crass ignorance is as fatal as intentional infanticide.*" The removal of such criminal ignorance, and the prevention thereby of much suffering and unnecessary dying of martyred children, is not the least noble province in which the physician or public man can play a part.

All patent foods contain an excess of **sugars**, which are liable to ferment, and cause baby to suffer from gas in the stomach, stomach-ache, habitual vomiting of a sour watery fluid, windy colic, and diarrhœa.

Though there are babies who will tolerate, and even thrive upon, such artificial, sugary food, it does not follow that all will. Therefore do not make the common error: because baby Smith has *seemingly* got on well on "Jones's Food," your baby will thrive equally well if fed on the same. For baby feeding is not conducted on nursery principles as simple as that which tells us that what is "good for Jack is good for Jill." For Jack may have the stomach of an ostrich and the constitution of a horse, which will pull him through alright on any food, however artificial, patent, or condensed, whilst Jill may have a delicate stomach and the constitution of a canary, which would try the patience of a mother Job, and discourage the keenest expert on dietetics!

And the sooner mothers realise this great home truth, the sooner the nursery will be clear of whining babies that waste, of colicky babies that scream, and of rickety babies that do not walk, neither do they cut teeth.

Remember that present comfort for the mother, and freedom from

indigestion for the baby—even when patent foods do *seem* to suit—can be purchased at too great a price. For though a food “stays down,” does not purge, baby seemingly grows strong and puts on weight, and an unskilled examination may seem to confirm this appearance of sound health in the handsome young Hercules, yet irreparable injury may be in the course of infliction. For the “patent food” all this time may be acting as an **insidious poison** without showing signs obvious to any but the expert medical man,—steadily undermining the constitution, and craftily inducing a rickets, scurvy, or anæmia, which means more or less permanent injury, and predisposes the baby to contract diseases like bronchitis and convulsions to which it might easily succumb.

The vast amount of needless misery and suffering inflicted upon children by the ignorant use, and criminal abuse, of cheap proprietary foods in infant feeding, is such that one is tempted to condemn them, bottle, cork, and wrapper! At any rate it will surely be evident, especially after what you have heard from me before, that if such foods are used at all, it must be with some knowledge of their composition, and of the conditions in which they are suitable. It has been part of my plan in these “Talks” to try to educate the non-medical public on this important subject, which is so intimately related to the Public Health of the nation. So long, however, as it is permissible for any enterprising speculator to advertise his condensed milk, or his infants’ food, for indiscriminate use by ignorant mothers; so long as a gullible public will bite at any bait, a credulous public believe in any lie, if it be only repeatedly placed before them in print, in paper or on poster; so equally long will infants be tortured to death, and be fed with food which breeds diseases, many of which tend to weakness, wasting, and death.

There are, for instance, brands of condensed machine-skimmed milk, the extreme cheapness of which induces the ignorant mother suffering from the pinch of poverty to substitute for the best and more expensive brands, but with disastrous and often fatal results to her unhappy baby. And so do certain other *cheap* patent foods provide **snares** for the poverty-stricken mother to use with deadly effect against her milk-sick or starving child. However it would be unjust to condemn too harshly such poor parents who have not provided their infants with the necessary food, when, practically, it is beyond their power to obtain it. But the system that leaves every citizen, however ignorant and incapable, at the mercy of every fraudulent food quack, is blameworthy and indefensible. As Dr. Vincent writes:—“A tradesman may be prosecuted for substituting margarine for butter, for selling a milk containing less than 3 per cent. of fat, but it is open for any individual to mix together some flour and sugar and to sell the mixture as the best food for infants and as a perfect substitute for human milk”—for which you pay a shilling for a pennyworth.

No wonder then that a medical examination of 2,500 children attending the board schools of Leeds revealed the fact that one-half were rickety, and therefore more or less incompetent.

There are undoubtedly some things to be said in favour of these trade preparations, which are thus insistently and attractively foisted on infants as such excellent, artificial, foster-mothers.

Condensed Milk, for example, is sterilised, convenient, does not readily

turn sour, the curd (proteid) ingredient in it is more easily digested than that in fresh cow's milk; therefore baby can sometimes take it when cow's milk causes "stomach ache," or refuses to "stay down." In case of an epidemic (*e.g.*, typhoid), when there is reason to suspect the local milk supply, condensed milk of a good brand is probably the best substitute; or in the hottest weeks of summer, when diarrhœa is most prevalent, there may be some valid reason for the use of condensed milk by the poor who cannot boil, and store, their cow's milk in the manner described, though Dr. Newman condemns its use even in these circumstances as "the worst form of food for infants." (See "Diarrhœa.")

And other patent foods might be defended in the same way. Yet all these difficulties can, to a large extent, be overcome by suitably sterilising, storing, modifying, or adapting cow's milk in an intelligent manner according to instructions given in our "Talks."

For if babies were fed on cow's milk thus properly prepared, and were not over-fed, or fed too frequently or irregularly, it would be found that not one baby in a hundred would require food other than milk.

And cow's milk has not the great disadvantage of these artificial foods—it does not contain an excess of sugar, or a deficiency of fat. It is this excess of sugar which causes babies thus fed on condensed milk, &c., to suffer from sugar dyspepsia, or diarrhœa; to tend to be unhealthily fat, to have thin blood, and to have their bones, teeth, and muscles so poorly developed. It is this excess of sugar, combined with too little fat which encourages the growth of rickets, and clears the way for other diseases by breaking down resistance to germ invasion. For in this way are baby's health forts reduced in number and weakly manned.

The starch-containing patent foods add still more terrors to infant life in the form of the indigestible starch. Therefore starchy foods should not perhaps be given to children below nine months, and a show of teeth is a sign that starch may be gradually introduced into the food.

With improvements in the milk supply, combined with a better knowledge of adapting the milk to baby's use, many reasons for the use of condensed milk and the patent foods will soon disappear. At any rate a great authority on infant feeding, Dr. Still, writes, "Of this I feel sure, that the more the medical man knows of the many simple methods of adapting fresh milk to the needs of the infant, the less use he will find for condensed milk or patent foods," and the burden of the cry of many medical officers of health speaking on this subject is, the need to encourage mothers to use cow's milk in place of patent foods, "to educate them to an appreciation of the necessity for the addition to, and the dilution of, cow's milk to render it suitable for infants' food." Last of all they urge you to remember that "THE ADDITION OF PATENT FOODS TO THE DIETARY OF VERY YOUNG INFANTS IS NEVER NECESSARY, SOMETIMES DANGEROUS, AND ALWAYS EXPENSIVE," that mother's milk is infinitely the best infant food, and that "mixed" feeding by mother and cow makes the second best substitute, which is far too often despised and rejected as useless or dangerous. For is not half a loaf better than no bread?

HEALTH TALK No. 6.

"CONSIDER THE CHILD."—AN APPEAL TO THE SOCIAL REFORMER.

The low birth-rate and high infantile mortality have very rightly aroused both public and professional attention to a more serious study of certain medico-sociological conditions which are inimical to racial evolution, and particularly to the advancement of our own people among the nations of the earth. By infantile mortality-rate is meant the number of deaths of children under one year of age to every 1,000 births. Although the general death-rates in most civilized states during the last 50 years have shown a marked reduction, the gradual progress of preventive medicine and improved sanitation have not lowered the infant death-rate in the same degree. On the other hand, a high death-rate among infants still remains, and there can be no doubt that lack of maternal care, combined with bad artificial feeding, is *the* important cause of a large number of **preventable** deaths of infants which are a disgrace to our Country and its Government. For badly reared and neglected children, children housed in squalid homes in air-less and stench-full alley or street, have a marked tendency to die, from conception to birth and from birth onwards, *via* prematurity and debility, bottle and dirt, sickness and diarrhoea, wasting and disease.

The great requirements seem to be (1) breast feeding of a healthily bred and reared baby, (2) baby caring by an enlightened and instructed mother, (3) money providing by a well-employed and educated father, (4) municipal helping by the provision of milk depôts and "health visitors," (5) State granting of additional statutory powers.

The breeding of healthy babies presents a vast problem in social science and heredity which would require a volume to itself to expound satisfactorily. If we can influence for good the health and nature of the unborn by protective and educational treatment of the parents, and particularly the mother, the first step in the effective prevention of disease and deformity will have been taken. The two streams of maternal and paternal tendencies fuse into the tiny river of life of the child (our future citizen or mother of citizens), and the study of them in this combination, or their results on the child's structure and development, is of profound complexity and difficulty. Immorality and prodigality, thriftlessness and alcohol-fulness, poverty and paganism, indolence and ignorance, the unsound mind in an unsounder body, the sickly spirit in a sicklier cage, in rotten rookery or stink-pot of slum, the *over*-care of the soul and the *under*-care of its sanctum,—these horrid evils or unbalanced benefits some of us recognise as providential designs for the firing out of God's unfit, whilst others of us see in them the ghosts of our own offences, and denounce ourselves as jointly culpable with the miserable sinner, and exercise ourselves to find means to remedy or eradicate.

The prevention of marriages of the unfit, and the surgical prevention of propagation *by the unfit*, are social problems which are receiving attention to-day. In America laws have been, and are being enacted forbidding the marriage of insane, epileptic, imbecile, or feeble-minded persons, of male applicants who are unable to support a family and likely to so continue, and "when either of the contracting parties is afflicted with a transmissible disease, or at the time of making application is under the influence of an intoxicating liquor or narcotic drug." In England, on the other hand, in recent years a new science of "Eugenics" has arisen which deals with the propagation of the *fit*, so that it would appear that a time is coming when happy Utopians will, with conviction and sincerity, join in the glorious thanksgiving that "we thine unworthy servants do give thee most humble and hearty thanks for all thy goodness and loving-kindness to us, and bless thee for our *creation*, preservation, and all the blessings of this life."

The social status of the worker and his wage earning capacity may well be left in its practical application to the humanitarian spirit of the age, and to those earnest and intelligent socialist and labour workers after a better physical life with improved hygienic environment, who have so recently infused into our parliamentary life a sense of social reality and equality: of the masses honest need and what the *masses rightly intend to get*. The fair-minded employer of labour or wealthy citizen of England, however much he may resent the aggressive tactics of some of these social reformers, will yet admit, and perhaps meet the need for goading and prodding, awakening and stimulation, of the individual and national conscience in the doing of that Duty we owe to our Neighbour. The Lamp of the Enlightened, now as always, shall illumine the track of those that would walk in darkness and in the shadow of death, and the Hand of the State continue to grip and lead the resister along the paths the reformer has ordained that he should take.

Medicine stands in close relation to the law, and the Labour Laws gain in interest when viewed from a medical aspect. The *Law Journal* in a note upon the legislation of recent years affecting the labouring classes at home, in our Colonies, and abroad, aptly observes that the welfare of the State has no meaning apart from the welfare of those who compose it, and that a population worn down by excessive toil, by insanitary conditions, or by overdraft on its youth, means national decay. To the organisation of labour is naturally ascribed the promotion of laws on behalf of workers, and the part which such organisation plays in stimulating benevolence is traced in the classification of labour legislation into seven groups which include the Factory Acts; Workmen's Dwellings Acts, Homestead Acts, &c.

When the stimulus of such labour organisations is absent, benevolence is wont to be somnolent and the humanitarian spirit very weak and below proof. Human nature is the same in all walks of life, and we are led to drop a penny on the workman's plate at the official collection when we would forget to notice the silent appeal of the box at the door! The *Lancet* may well write in reference to labour laws that "It would be interesting to know what class benefits by the cheap clothing manufactured at starvation rates by helpless women, and how far the fact that

it is worn by working men and by their families contributes to the maintenance of conditions which in some spheres of labour would be looked upon as intolerable. It is idle to congratulate ourselves upon labour legislation as likely to promote the physical welfare of the nation at large, when it leaves untouched a substantial portion of the working classes, and when in such cases of women's labour as those referred to, the mothers of future citizens are left to toil in circumstances wholly incompatible with healthy living."

I have more hope of the salvation of the children, and therefore of the adult, through the social and medical reformer, than through the clergymen's present day unspiritual and unworthy wrangling for the *peculiar* and sectarian salvation of the soul of the child by so-called religious teaching in the secular atmosphere of day schools, or of ministerial interference in political affairs like those affecting the natives in Natal, rather than the *ante-natal* or *post-natal* affairs of England's potential or actual citizens at home.

Nor can the Education Authorities as a whole be considered free from blame. Though the dwellings of the poor are unhealthy, damp, insanitary, ill-ventilated in far too many cases, and occupied by dirty, ignorant, indifferent people, at the best careless of the lives entrusted to them, and often glad enough to see those lives surely wasting away—yet "Even without attributing sinister motives, the appalling and disgraceful ignorance left after 30 years compulsory education, of everything as to the feeding and bringing up of an infant, is sufficient to insure a high death-rate. The responsibility for this must fall in great part on the School Authorities, being another proof of the necessity that the school master, the medical man, and the sanitarian are jointly concerned in the development of all sound educational schemes." (*Lancet*.)

Thus, in the first place, a great effort should be directed to secure that all elder girl scholars should be taught as a separate subject in the school curriculum 'How to rear children.'" In this, London leads the way.

The **ghastly ignorance** about domestic economy which prevails amongst the working classes must injuriously affect the physique of the poor, and be an important factor in causing physical deterioration which, therefore, demands specific effort for its remedy.

Next comes the **curse of drink**, itself often the direct offspring of ignorance, and, to some extent, the consequence of superstitions about the effects of alcohol which still retain their hold upon the public mind, notwithstanding scientific and practical demonstrations of their fallacious and misleading character. For alcoholic drinks are *not* warming and strengthening, and instead of being good nutriment they undoubtedly affect injuriously many portions of the body of which the brain suffers not least. Professor G. Sims Woodhead has stated that as little as from one to one-and-a-quarter ounces of spirit per diem did harm to a vast number of mankind. Workmen turned out inferior work through excess in taking alcohol. **MOTHERS SHOULD ON NO ACCOUNT TAKE IT.** The children born of those with drinking habits were handicapped during their lives through the loss of vitality,—they were never so healthy as the children of total abstainers, and their mortality was far greater. Total abstainers, as shown by the actuarial statistics of life

insurance companies, lived longer and were less liable to disease than even moderate drinkers. Hard drinkers could not get insured by the companies,—and surely that spoke for itself.

NOTE.—A man or woman giving way to drink or impurity may pass disease on to the children even of the third and fourth generation. "No man liveth to himself."

The National Health Society (of which Sir Frederick Treves is chairman of Committee) is devoting special attention to Temperance in relation to the National Health. A few months ago I was one of a few thousand medical practitioners who signed a memorial urging the teaching of hygiene in the schools and the dangers attending the use and abuse of alcohol. Some ten years ago, in one of the speeches I made on the temperance platform, I prefaced my remarks by stating that I was one of those "who had the good sense to preserve my organs intact from that evil genius of degeneration and disease—alcohol!" I then attacked intemperance from the side of public health—"Intemperance in its worst form . . . was a disease, and the germ of that disease was alcohol . . . without alcohol no infectious liquor germ or germ of inebriety," and I dealt with the disease of alcoholic excess as if it were as infectious and deadly as the plague or rabies, and to be dealt with accordingly by the Public Health Authorities. What I said can be gathered from this extract from an editorial note, "While in regard to the question of the necessity for more stringency in the matter of drinking and drink selling, his views are certainly novel, not to say drastic, but at the same time conceived in the true spirit of the Public Health Act." I read with pleasure a lecture by Dr. Clouston, the mental expert, two or three years ago in which the same views were urged with great eloquence, and it is with satisfaction I note that now the Municipal Authorities are disseminating temperance leaflets and publishing warning notices against alcohol, as if it were a spiritualised tubercle bacillus or other destructive disease germ of equal malignancy!

You might have noticed in these "Talks" my sympathy with Socialism. Please excuse a digression and a little bit of autobiography, and allow me to quote from another cutting in the collection of a small bundle of speeches and letters on social questions of the day which I treasure as "landmarks" of my life. I was addressing a meeting as a candidate for municipal honours. The report of my speech read thus—"He was a Liberal with democratic sympathies, his sympathy was with the working classes. His Socialism had for its basis a fair day's wage for a fair day's work, and he agreed with Keir Hardie's definition of what a fair day's pay was for a fair day's work . . ."

To resume, "Next to drink as a cause of impaired physique among the poor we should be inclined to place **dirt**, sheer bodily filthiness. With possible exceptions in the cases of Thibet and Lapland we are compelled to admit that the English working classes are probably the dirtiest bipeds in the world, alike in their clothes and in their persons" Thus writes the *Lancet*. Whether this be true or not, it cannot be denied that even in the most recent of "model dwellings" it is often found that the inmates live in a state of dirt and squalor little better than their old surroundings. Obviously, then, the hygienic reform which has resulted in a change of "piggery" has but limited present

usefulness unless it be accompanied by patient education of the great masses of the people in the elementary laws of health.

Dr. Niven, the Medical Officer of Health for Manchester, in the summary of a most excellent and practical lecture he has published on "Food and Drink in relation to Disease," and "Feeding in relation to the Health of the Young," writes:—

"1. It is of supreme importance for the welfare of the nation that the children should be adequately fed, so as to develop, as far as heredity and environment will permit, sound minds in sound bodies.

"4. If, however, children during school life were adequately fed so that they could profitably receive instruction, and if that instruction were such as to educate them, as far as practicable, so as to make them fit for skilled work, wages would be more equalised, and a higher standard of living would result.

"5. There are at present various sources of enormous waste going on, of which two stand out very clearly: (*a*) Drink. If the amount of alcohol consumed in this country could be diverted to the feeding of children it would maintain 20,000,000 in food, and if reckoned only as beer and spirits it would maintain 11,000,000 at a charge of 6d. per day, which would be an ample allowance. It may be said broadly, therefore, that the amount of alcohol consumed is the chief cause of deficiency of food for the young. (*b*) But a great waste also occurs from want of knowledge on the part of mothers of how economically to select, buy and prepare food. This knowledge should be imparted in the schools. In association with this is the waste due to want of knowledge of the elementary principles of health in relation to breathing, clothing, exercise, cleanliness and so forth.

"6. The Education Authority possesses machinery which, when improved and extended, will enable them to detect illness and innutrition amongst children, and to apply remedies.

"7. Teachers should be trained to look after the physical conditions as well as after the mental instruction of their scholars, and that training should be practical."

Dr. Ritchie is engaged giving such a course of instruction to teachers in Manchester. In Birkenhead I have sought permission to instruct teachers on the special hygiene of the Eye, Ear, and Throat.

I would strongly advise every member of an education committee and school teacher to study this instructive lecture of Dr. Niven. It is published by Sherratt & Hughes, London & Manchester, and costs 1/6.

In Manchester, as in other large centres of population, the signs of the physical degeneration of the people are so obvious that it has become necessary for the public health authorities to take official cognisance of a state of affairs, &c., which, if allowed to drift, might have serious industrial and economic effects.

"Health Talks" already are being given in some of the elementary schools throughout the country impressing upon the children attending them the value of fresh air, ventilation, and personal cleanliness, and these are, I understand, attended with a very marked improvement in the condition of the children. If only our clergymen were given the faculty of seeing ourselves as others see us, and the medical profession

would assert itself in the public life of the nation in a measure proportionate to the vastness of its claim, the children might be taught with enormous advantage the saving value of health creeds as distinct from the religious creeds of the churches. (By this I do not mean to deny that moral and religious teaching of a *non-sectarian* character occupies an important place in the scheme of education.) For it cannot be doubted that if the county councils would make proper use of the powers recently conferred upon them, and would see that the education of poor children, especially of GIRLS, was of a kind calculated to be useful to them in after life, and not as useless as it has been hitherto, the axe would be laid to the root of many social evils which are distressing and cankering England's citizen life to-day.

But note, the father, the MAN, has home responsibilities as well as the mother. The appalling sacrifice of child-life is not entirely, though largely, a matter of maternal neglect, indifference, and ignorance; of mothers not knowing and not caring to know how to feed their children, clothe them, protect them from illness, nurse them, or failing in other ways to "mother" their young at the bidding of strong and alert, well-fed, maternal impulses. If fathers did their duty better in providing for and supervising the home, there would be a reduction in the death-rate from infectious diseases due to bad sanitation, evil environment, and overcrowding conditions, which are largely in the control of the wage-earning and worthy man. And when we consider diseases like diarrhoea due to improper feeding, it must not be forgotten that it is men who raise the rent, *nurse the slums*, and sweat the worker; who sell impure milk, and advertise patent foods unfit for infant consumption; who too often are thriftless or spendthrift, neglectful or indifferent, leaving without compunction or remorse the broken-backed mother without means to buy proper food for the starving children.

However much we men have libelled women for their ignorance, indifference, and negligence, "may the day never come when the women of England will shirk the dignity and the sacred claims of mother-hood; so surely as such a day does dawn, the death knell of England's greatness will be sounded, for at the very apex of God's creation stands the mother."

"An ounce of mother is worth a ton of priest." This old Spanish proverb was quoted by the Bishop of Liverpool in a powerful sermon his lordship preached recently on the "Decay of Home Life." In this sermon the bishop not only pleaded for the care of the children by the **parents**,—by the father that means as well as the mother, but urged the need for personal service by young men, and of fulfilling the duty of civic patriotism by actual service not by vicarious subscriptions to Church funds. Surely an easy way of earthly insurance for heavenly happiness, that of wiping the slate with a cheque!

Now, however, we are more concerned with baby-caring by the mother, assisted, if need be, by the town or State, by voluntary helpers, or compulsory contributors. There must always be room for sympathy and work amongst the afflicted poor which no State could provide and which no paid officials could supply. Much of England's good work for the children is done gratuitously by those who labour for love, how-

ever much it may expose them to reproach from evil thinkers and malice-mongers, or from worms which squirm beneath overturned stones !

The present excessive infantile mortality is a severe indictment of our methods of rearing the infants of the working class, and signals a **State Danger**, and the necessity for immediate and radical action, to seek and to save those who may be, more or less, badly "shot" by the wild firing of our social system. Death is the most severe result, but of the survivals of the fittest many are seriously and permanently injured, and incapable of attaining perfectness in any estate of body or mind. There is no doubting this fact. The terribly high infant death-rate in the country implies that owing to a lack of knowledge and of care many of the survivors were permanently weak, and that herein must lay the root of the physical deterioration of our people.

Medical officers of health and sanitary authorities are fully satisfied in regarding the remarkable decline in the English general death-rate as an encouraging incentive to the maintenance of their strenuous warfare against all forms of insanitary and degenerating conditions. They are also equally convinced that the records of Infantile Mortality remain a dark page on our national history, and that they indicate a need for new methods of attack against that dare-devil Death which stalks through the slums and working-homes of our country with an immunity which is appalling in its dire significance. Do we sufficiently realise that anything which would save the lives of our children would not only yield a harvest of good in our day, but would, also, prove of enormous importance in years to come when the nation will surely need all the vital force it can command? I sometimes doubt it!

As you know some time ago the Mayor of Huddersfield, impressed by the high infantile mortality within the borough, and with the idea of developing an intelligent interest in the matter of the rearing of children, promised a sum of £1 to the parents of every child born within a certain area on the latter attaining the age of 12 months. The report of the first year's operation of this admirable scheme of mothers' help proves, in an unmistakable manner, that a very large proportion of infantile mortality is preventable, for in the district to which the scheme was applied the infantile death-rate was 54 per 1,000, as compared with the average for the whole borough, 144! Such public-spirited action on the part of Alderman Broadbent cannot fail to be far-reaching and beneficial in its influence, and will certainly help to concentrate public opinion on this most important subject. And as the revivalist puts it, a feeling of need must forerun a saving conversion—a remedy.

The great accumulation in towns and the development of our industries, with the attendant stress and tension, have resulted in the complete inability of a very large proportion of mothers to nurse their infants. The present conditions are due primarily to this cause, and secondarily to the general absence of an efficient substitute for the natural food. "Back to the land," is the burden of the reformer's tale. "Back to the breast" is the urgent advice of the medical reformer. It would appear, therefore, that one is but synonymous for the other—"Back to Nature."

"Back to the land" is often, however, an impossible piece of advice. The land requires skilled labour as much as the town. The "crocks"

and the wastrels are not wanted there, although some cynic has remarked that all our "crocks" were returning to the land, whilst all our stalwarts were degenerating in the towns!

Universal breast feeding of infants would at once remove the common cause of death by food infection, or patent food destruction and starvation, and would thereby lower the infant mortality rate at one great leap. This is, unfortunately, not possible or practicable. Some mothers are willing but unable from one cause or another, within or without, to suckle their young. We can morally encourage mothers to nurse their infants; we can exhort them to be patient and persevering in their well-doing; we can teach them how to overcome their difficulties of lactation, or assuage for them the early pangs of painful suckling; we can feed them, "dole" them, materially encourage them to furnish milk by free meals or pound prizes; inspire them with selfish hopes of less anxiety and bother, and with the prospect of finer babies with fewer troubles; we can invoke for our child-bearing women, some Municipal or State aid and protection, post-partum as well as ante-partum,—yet there will remain in spite of everything in all communities an increasing proportion of mothers quite incapable of nursing their children under **the social conditions** obtaining in England to-day.

We are driven to believe the pitiful statement that many poor mothers cannot suckle their children because, for lack of proper nourishment, they are in a state of physical misery. Often it happens that the poor mother has to go to work early and has no chance of learning household duties or the bringing up of children. Well might Dr. Niven conclude from his Manchester and Oldham experience that a "great many of the babies who died from summer diarrhoea died from starvation, and that the mothers did not know what food to give them and had not enough" of it wherewith to feed their infants.

The successful rearing of these non-suckled infants depends upon a proper supply of suitable food. This food for the children of the people is PURE COW'S MILK, suitably modified to make it as much like human milk as possible—in other words "Humanised Milk."

The supply of human milk running short, sanitarians and good samaritans were driven to consider in what way the feeding of infants could be improved. [Unfortunately, too, compulsory universal education has brought into prominence the existence of a large class of underfed school children who are also worthy objects of charitable assistance.]

It is to the prevention of the enormous waste of infant life caused by improper feeding, that our sanitary authorities have chiefly directed their attention. With this object many municipalities have systematically distributed leaflets containing simple practical instructions in infant feeding. Manchester was the first to go further, and to organise the system of home visitations by "health visitors," which has since been adopted in many other districts. The regulation of infant feeding slowly became regarded as a matter coming within the scope of the municipal organisation for the protection of the Public Health, and the next step to be taken in this direction was to provide our poor "breast orphans" with "humanised" milk by establishing "municipal breasts" in the form of "Infants' Milk Depôts."

Among the modern measures for the protection and preservation of child life, the establishment of properly equipped and medically controlled Infants' Milk Depôts must strike layman and medical man alike as worthy of support and further extension, as a practical step toward the solution of a great social problem, viz., the provision of a proper supply of suitable food for the bottle-fed babies of the poor. An outline of the history of these Milk Depôts may therefore prove interesting as well as instructive. At any rate it will convince you that England is not first in every class of good thing, and that in the care of young children, in dealing in a systematic manner with the food and the feeding of infants, and in the instruction of mothers with regard to the general management of their babies, England is deplorably backward as compared with our neighbour across the water—France. It is not flattering to England to read that the British members present at the Congress held in Paris, October, 1905, were deeply impressed with the earnestness and enthusiasm with which the whole subject of infantile mortality is being considered in France, and to contrast this attitude with the apathy prevailing in the public mind of this country with regard both to birth-rate and the mortality of infants. "The continuance of a high rate of infantile mortality is a reproach to our system of preventive medicine, but our French colleagues have shown us the way to methods which are conceived on right lines, and are destined to be fruitful in results." (Dr. McCleary, Med. Off. of Health for Battersea.)

For it is to France we are indebted for the idea of the milk depôt. Vive l'entente cordiale! The germ of the idea may be said to emanate from Prof. Herrgott, of Nancy, in 1890. "The chief feature of the work of this maternity charity was, that the mothers were encouraged to attend with their babies a month after delivery, when the babies were carefully weighed and examined, and if their progress had been satisfactory the mother received a substantial present." Out of this developed the "Consultation de Nourrissons" by Prof. Budin.

In 1892 Professor Budin founded the first "Consultation for Infants" (as it was called) at the Charité Hospital in Paris, for the purpose of inducing women who had been delivered in the maternity to return to the infant out-patient department, that their babies might be watched and the feeding directed under regular medical supervision. This is advised to be done weekly or fortnightly for two years, that is, until the difficult periods of weaning and teething have passed.

The experience of French physicans was that mothers with young babies left to themselves, or to equally ignorant neighbours or relatives, commit endless faults in infant feeding and rearing, which not uncommonly resulted in the early death of their child. "My baby is dead" was often the reply to "how is baby?" At the "consultation" the baby is undressed, weighed, medically inspected, and its progress recorded on card and weight chart. The supreme importance of breast feeding is urged, and encouraged by gifts of baby-clothes, food, or money; the doctor advises and helps the mother, by regulation of her diet and mode of life, to continue to suckle her child to full time; gives any necessary advice about "mixed" feeding, or complete bottle feeding should even partial breast feeding be impossible; and prescribes for baby the

requisite quality and quantity of "humanised" milk which is supplied to the mother in bottles, one of which contains sufficient milk for one feed only. The "consultation" becomes a veritable "school for mothers," for not only are the babies looked after, but the mothers also receive advice, encouragement, and help in their well caring for baby. "It is obvious that the children brought to the "consultations" start life with great advantages. From the moment of birth they are under the supervision of expert medical advisers, who not only are fully alive to the enormous importance of breast-feeding, but, what is more to the point, who spare no pains to secure successful breast-feeding, and, as might be expected, the mortality of the children is remarkably low."

Can a better plan be conceived of training the intelligence, inspiring the devotion, and educating the maternal instincts of the mother charged with the onerous duty of rearing a child to physical perfectness?

The success attending these strenuous efforts to help mothers is proved by the fact that Dr. Maygrier, who carries on the first "Consultation" founded by Professor Budin at the Charité, has 73 per cent. of the infants entirely breast-fed, 22·5 per cent. on "mixed" feeding, and only 4·5 per cent. artificially fed. These figures are specially significant when we learn from the observations of Professor Charles at Liège that, in spite of every precaution, **mixed feeding shows 10 times and artificial feeding 25 times more deaths than feeding at the breast.**

So encouraging were the results obtained by Professor Budin, that similar "consultations" were created in connection with dispensaries for children, &c., in the different quarters of Paris, so that in Paris alone there now exist 28 "consultations for infants," in connection either with maternities, or with children's dispensaries under the Assistance Publique, or organised by private charity. The "consultation" at these children's dispensaries is practically an intermediary stage between the Maternity Hospital system and the Infants' Milk Depôts to be next described. Although in both cases the child is assumed to be brought irrespective of its state of health, it too often happened that they were brought for the first time when they had ceased to thrive, or when definite symptoms of ill-health had become established. The fact that in some Maternity Hospital schemes the mother is induced to bring her child by the prospect of a gift of money or clothes, may offer part explanation of this.

In 1894 Dr. Leon Dufour organised at Fécamp as a separate institution an Infants' Milk Depôt which he happily called a "*Goutte de Lait*," or "drop of milk," the term obviously having reference to the preparation of small quantities of milk suitably bottled for a single meal. At this Depôt infants are fed, under medical supervision, on sterilised humanised milk. "All the infants in the town are admitted, and Dr. Dufour divides them into three sections; a free section for the poor, a working class section which pays half-price, and a section for the rich who pay full price. Those who are well off must help those who are not." For the more favoured it is a training in practical benevolence, and seems to offer no barrier to the patronage which is extended to these depôts by practically all classes. In the *goutte de lait* (infants' milk depôt) under the direction of M. Rothschild in Paris, sterilised

whole milk is sold in bottles at prices which bring it within easy reach of the working classes, and is given gratuitously to the indigent poor.

Dr. Dufour's object was to fight against the excessive mortality of the artificially reared amongst the poorer classes at Fécamp, and in this fight against death he was successful, for he succoured and saved many infants for whom breast feeding was impossible. Dr. Dufour believed that every mother desired to nourish her offspring, but was often prevented by physical, social, or pecuniary conditions. He regarded artificial feeding as a misfortune, but a misfortune which was much aggravated when conducted without advice or direction. To supply suitable milk and the needful advice was the work of his *goutte de lait*.

This, then, is the principle of the *Goutte de Lait*, to supply suitable milk to poor parents gratuitously or at a reduced rate, and to keep the infant so fed under regular, systematic, and careful MEDICAL SUPERVISION.

"The 'consultation' or *goutte de lait* must not be considered as a sort of milk dépôt, with the sole object of distributing sterilised humanised milk, but first and foremost, a **dispensary** to which mothers shall bring their infants and be given necessary advice as to their feeding. Only such organisations as have at their head a doctor, to follow the infants in their regular developement, and help the mothers with his advice, can be considered as of real utility." (Dr. Robinson of Paris).

When the milk-supply is close at hand, and the milk is of good quality and a large quantity is not required, it is modified and sterilised at the dispensary or Dépôt. When the milk supply is at a distance and uncertain, and when the quantity distributed is large, commercially sterilised milk is used. [No dépôt should be a cloak for impure milk.]

Dr. Panel, who directs a Municipal Dispensary at Rouen, gives 3 lbs. of meat per week to mothers who suckle their infants, which costs less than supplying the babies with sterilised milk. Extra gratuities of 10 or 20 francs are given by the municipality to those who look after their children well. The desired result has been obtained, the breast has ousted the almost universal bottle in Rouen, and the mortality has been greatly lowered in consequence of this rational philanthropy.

Most of the Infants' Milk Dépôts in France are conducted on a philanthropic basis, and are financed by voluntary subscriptions. But maternity hospitals, voluntary organisations, and municipalities are all at work mutually assisting one another in the solution of this grave national question, "a question, moreover, which in this country at least, is attracting little attention, save from a few local authorities and Medical Societies."

"Consultations for infants" and "Infant Milk Dépôts" (*Gouttes de Lait*) are now being founded throughout the provinces of France in towns and country districts—there are upwards of 90 *gouttes de lait* in France—in the colonies, in Belgium, Spain, and other countries.

The Hon. Nathan Strauss originated a similar movement in New York in 1893. In 1902 fourteen were in operation in New York, while similar Dépôts have been opened in Brooklyn, Philadelphia, and other American cities. The name of Mr. Strauss is well known in New York in connection with his efforts to place a suitable food within the

reach of the poor of that city. The figures in the report he has published carry with them most positive and powerful evidence of the benefit of his work on behalf of the infant.

In England, the first Dépôt of the kind was opened in 1899 at St. Helens, after a Committee of the Town Council had visited and reported upon Dr. Dufour's Goutte de Lait, at Fécamp; at Liverpool (the largest in this country) in 1901, Battersea in 1902, and Infants' Milk Dépôts have been established at Glasgow, Dundee, Finsbury, York, Bradford, Ashton-under-Lyne, &c., and Woolwich, Lambeth, and other places are following suit.

"At all the Dépôts it is the practice for the names and addresses of children receiving the milk to be passed to a Lady Inspector, in order that she may inspect the homes, and see that the milk is being properly used and the instructions carried out. This is a matter of great importance. At Battersea it is also her duty to refer the parents of children who cannot be nursed at the breast to the Dépôt, and endeavour to persuade them to use the Dépôt Milk." In *all* Dépôt instructions, however, the importance of breast feeding is emphasised thus:—"N.B.—The milk should never be used in preference to mother's milk, which is the best of all foods for young infants."

In the Battersea Dépôt (as at Finsbury) special attention is now being given to the baby weighing, which is supervised by the Medical Officer of Health, who VARIES THE MODIFICATION OF THE MILK ACCORDING TO THE REQUIREMENTS OF THE INFANT. This is of the greatest importance.

It is the careless and ill-regulated supply of improperly modified milk which has brought some English Milk Dépôts into disrepute. It stands to reason, of course, that any feeding scheme is doomed to failure which treats baby's stomach like an automatic machine calculated at a certain age to dispose satisfactorily of a bottle-ful of the Dépôt's milk mixture per meal, *volens nolens*. "An Infant Milk Dépôt is an institution that requires careful watching and controlling. It is not making the best of such a Dépôt to *distribute the milk indiscriminately*, not only to any infant whether it can be breast-fed or not, but to any artificially fed child, and especially to infants suffering from epidemic diarrhœa." (Dr. Newman.)

There is no doubt that the value of our Milk Dépôts would be much increased if a regular medical consultation formed part of the work, and especially if that consultation were opened to nursing mothers. This should be clearly understood. If we wish the Dépôt system in England to be successful we must copy the French methods and MAKE PROVISION FOR THE EFFECTIVE MEDICAL SUPERVISION OF THE CHILDREN.

The control of the milk supply is *most important*. The treatment of the milk varies slightly in detail at different English Dépôts, but roughly the practice is to buy cream and sugar, and add this to the milk which is then diluted with water in certain fixed proportions according to the infant to be supplied. Most Dépôts impose conditions upon the farmer supplying the milk in order to get it good and pure, and milk received at the Dépôt is tested to see if it comes up to the standard required.

The milk is further sterilised or pasteurised with this two-fold object:—

(1) To destroy the germs of disease which may be contained in the milk; Pasteurisation kills the known germs of the common infections,

enteric, diarrhœa, diphtheria, and tuberculosis. Complete sterilisation aims at destroying all germs.

(2) By destroying the germs of decomposition, to preserve the milk until it is consumed. Pasteurisation with immediate COOLING prevents decomposition for at least 24 hours. After sterilisation, milk may be preserved for weeks. Pasteurisation is preferable to sterilisation.

Milk is sterilised by boiling in the usual way for at least an hour, or by exposing it to the temperature of boiling water (212 degrees F.) for 40 or 60 minutes. Pasteurisation consists in keeping the milk at a temperature of 155 degs. or 170 degs. F. for 30 minutes.

[So important is the COOLING, and keeping cool of cow's milk for distribution, that in New York milk above the temperature of 50 deg. F. is defined as adulterated, and whenever found in the hands of dairymen, carriers, dealers, and retailers it is liable to summary destruction. I regret to read that the "Dairy Order in this country has failed to produce a milk supply free from gross contamination, quite irrespective of the presence of infectious disease."]

The York and the Finsbury Depôts appear to be the only ones worked by voluntary and philanthropic societies, the others are maintained and controlled by municipalities. The Finsbury Infants' Milk Depôt is the only one in England established on French lines in that there is medical supervision of the children supplied with milk, and the work is conducted by a voluntary committee of medical men assisted by lady visitors. It may prove interesting and suggestive to some to learn that this Depôt was established in 1904 under the auspices of the Social Workers' Association, which is concerned with the co-ordination of the various social agencies in the Borough of Finsbury, and with the teaching of thrift and hygiene. For the purposes of the last-named a Health Committee was appointed, which for certain reasons resolved to establish the Depôt. Dr. George Newman, the Medical Officer of Health for Finsbury, is the hon. secretary of the honorary medical staff of the Depôt, and to the excellent report by Dr. Newman of the first year's working of this most interesting of English Milk Depôt experiments, I would refer the reformer, and acknowledge my indebtedness.

The principles laid down were—(1) To ensure purity of the milk by direct and complete control of the milk at the farm, and thus avoid the serious fallacy of sterilising unclean and toxic milk; (2) Treatment of the milk *immediately* after its yield, and before the contained micro-organisms have had time to multiply or secrete their poisonous products; (3) Medical supervision of the entire management of the depôt and of the infants using the milk; (4) A discriminating and careful distribution of the milk only to infants who could not be breast-fed, and the use of a suitable modification for each child; (5) A systematic and experimental study of the effect of the milk on each child accompanied by medical examination and periodical weighing; (6) Its power in protecting infants from such polluted-milk disease as epidemic diarrhœa; (7) The adoption of a policy of increasing rather than decreasing the sense of responsibility of the mother.

Dr. Newman thinks that, on the whole, the results show an exceptional measure of success, and such as justify the establishment of similar Depôts

elsewhere. The Dépôt has saved the lives of some children, improved the physical condition and strengthened the constitution of others, and shown that it may substantially reduce the infant death-rates, and afford mothers valuable training in infant management.

"But its value in this respect, as well as in respect of nourishing and saving life, would appear to depend in large measure upon the personal assistance and advice of a skilled visitor at the homes of the children."

"Each child fed on the Dépôt milk is visited in its home once a week, and in some cases more frequently. In this way a direct personal influence is brought to bear on the mother, and homely advice is given and precautions taken as to the management of the infant. Sanitary conditions and their effect on the health of the child are noted. Moreover, it has been found in practice that printed instructions as to the way in which the milk is to be used are not properly understood by the mother apart from personal advice or actual demonstration. Preparation and bottling at the farms protect the milk from *home contamination*, but it is necessary that the infant should take the milk direct from the bottle in the proper way if such contamination is to be absolutely avoided."

"I attribute much of the success of the Dépôt to these personal visits and assistance" of lady visitors who kindly helped the Dépôt Committee.

With regard to that scourge of infant life, *epidemic diarrhœa*, it is satisfactory to note that (a) Dépôt fed children suffer much less than other artificially fed children, and (b) that they have a much lower fatality even when they are attacked. The poison of this disease had entered the child directly, probably through "dummy," dirt, or dust, as Dr. Newman says it is, of course, almost useless to give a child milk which is free from infection if between its meals it is supplied with a filthy and infected "comforter." A skilled "health visitor" would teach the mother that milk is not the only means of child contamination and infection, and the danger of allowing her baby to deal in dirt.

It will appear that such an Infant Milk Dépôt is both a remedy and a SCHOOL—a remedy by supplying suitable nourishment to infants debarred from natural mother's milk, and a school of infant management for ignorant and inexperienced mothers.

It is not a milk-shop where any person can obtain milk, it is not worked in opposition to the milk trade, it is not the thin end of the wedge of "municipal trading," and care has been taken in no way to injure the ordinary milk trade carried on in the borough. It is a specialized milk supply for special circumstances which cannot be met by the trade, and intended for certain infants who could not be *well and safely* fed in any other way. No medicine is given at such an Infants' Milk Dépôt or "milk dispensary," and if medical advice is required the mother is instructed to consult a medical man or go to hospital. It is for feeding the infant under medical supervision, a French "Goutte de Lait," not for feeding and perhaps physicking at a "Consultation for Infants" attached to a maternity hospital or children's dispensary. An Infants' Milk Dépôt therefore is quite a new departure, and does not compete with milk-shop or hospital. It serves rather to raise the standard of the milk supplied from the former, and to relieve the pressure of sickly babies and rickety children attending the latter.

Resolutions of International Congress of Infants' Milk Depôts (Paris, October, 1905), will show you the opinion of experts on this question :—

1. That Local Authorities should take all measures in their power to impress upon mothers the greatly increased liability to disease to which artificially nourished infants are exposed. (This, of course, refers to uncontrolled and unwise artificial feeding as commonly practised.)
2. That *gouttes de lait* be established as widely as possible.
3. That all *gouttes de lait* be under medical supervision.
4. That Local Authorities should encourage and facilitate their development as well as the popularisation of infantile hygiene by every available means.
5. That rigorous legislation be introduced in all countries for the supervision of milk destined for the food of infants.

"We may hold to our conviction that the ideal milk supply is a pure milk, but trade customs, as well as social habits, are not to be changed rapidly, and so long as the prevailing conditions in cowsheds are as we know them to be, and so long as domestic customs expose milk to all the dust impurities which permeate the air of so many of our houses, Infant Milk Depôts should form the centre of a wide field of social and hygienic activity, which should be of inestimable value to the community. In many directions we hope to see the work of the Milk Depôt amplified and extended." (Extract from "Report of Glasgow Deputation" to the Paris Congress.)

"The municipal Infants' Milk Depôt marks a step in the progress of a movement which is perceptible in other departments of public health work, a movement to extend the sphere of the physician in the collective organisation for the protection of the public health. Preventive medicine has become too much a matter of sewers and drains, and costly isolation hospitals, but there are unmistakable indications that, in the enormously important work of SCHOOL HYGIENE, in the control of infectious disease, and in the prevention of infantile mortality, there is an increasing recognition of the value of the more special function of the physician, viz., the separate consideration of the individual human unit." (The Medical Officer of Health for Battersea.)

Good **General Sanitation** is also of great importance. Pure air, pure water, pure food, and pure soil are more important for the infant than for the adult, because impurity is more potent for harm in the case of the young.

Efforts more specially directed to the saving of child life, and the amelioration of the conditions under which children live, may be summarised as follows :—

- "(1) The provision of additional statutory powers :—
- (a) To prohibit the use of undigested farinaceous foods for infants less than seven months old.
 - (b) To prohibit the use of feeding bottles with tubes.
 - (c) To regulate the putting out of children to nurse.
 - (d) To prohibit the leaving of young children alone in circumstances of danger. (Child Burning—flannelette.)
 - (e) To prohibit women engaging in certain work in the last month

of pregnancy, and from resuming work for an extended period after confinement.

- (f) To enable inducements to be offered to mothers and guardians to give children the breast and otherwise to maintain their health.
- (g) Over milk supply, storage, and sale.
- (h) Prohibition of statements in advertisements to the effect that foods which are useless for infants are beneficial.
- (k) Prohibition of sending infants out to nurse, except to proper places and to proper persons.

(2) That small payments be made to registrars, midwives, and others for notifications of births, if made within seven days. (Registration is not required by Law for 42 days.)

(3) Appointment of Lady Health Visitors.

(4) Provision of day nurseries and milk depôts combined. The milk to be obtained, stored, and prepared with the nearest approach to ideal conditions that can be obtained, but not at present sterilised.

(5) Printed advice and warning distributed to all parents as early as possible after the birth of children.

(6) Weekly advertisements in papers that all who have or are about to have babies, or children, in their care can obtain full information and rules for their guidance on application to the Public Health Departments." (Report by Medical Officer of Health for Huddersfield.)

It is interesting to note that there is now a bill before the House of Commons promoted by the Huddersfield Corporation, containing certain clauses inserted with a view to the diminution of infant mortality.

Time will not permit me to review the measures that are being taken in our Colonies, New Zealand for example, and other countries, for the protection and preservation of child life, or to compare our State attitude in the protection of the unborn child by guarding its mother, as compared with that adopted by the Germans and Jews.

"It is clear that such a specialized milk supply (depôt) does not meet the whole problem of infant mortality, the solution of which depends, on the whole, ultimately, not upon the State, nor yet upon this or that system of milk feeding, but upon the [trained] intelligence, the [inspired] devotion, and the [educated] instincts of the mother." The bracketed words are mine, and suggest the extended sphere of usefulness of the teacher in the school, the medical man at the dispensary, the clergyman in the pulpit, the health visitor in the home, and the social worker and devoted woman organising and inspiring help for the needy and helpless child. As Mr. W. G. Wells truly says:—"Come to think, it is all the Child. The future is the Child. The Future. What are we—any of us—but servants or traitors to that?"

*"No change in childhood's early day,
No storm that raged, no thought that ran.
But leaves its track upon the day
Which slowly hardens into man."*

ROMANES.

FEEDING INSTRUCTIONS.

Breast Feeding.—If the mother is healthy, and has plenty of breast milk, the child should not have any other food whatever until it is seven months old. During the first month or six weeks the child should be suckled every two hours in the day, and every four hours at night; after this age the interval may be gradually lengthened to three hours in the day and six hours at night. The child should be put to the breast at the same time every day, and should not be allowed to remain at the breast more than 15 minutes at a time. Let the baby sleep from 11 at night to 5 in the morning without a meal. A child should not be wakened for feeding. Crying is *no reason* for putting a child to the breast. Too frequent suckling produces vomiting, wind, or colic (indigestion); this is why OVER-FED babies are FRETFUL. Less milk at longer intervals will often put them right.

Mothers should take an abundance of good plain food while suckling. Nutritious and cheap foods are flour (as puddings, biscuits, bread), oatmeal as cakes, herrings, milk, peas and beans. Eggs are excellent food but dearer. The cheaper sorts of meat should be used to some extent. Peas and beans should be well soaked in cold water, and used with fat such as butter, dripping, margarine, lard. Wash and dry the nipples after each feed, and if sore or “cracked” paint with hazeline.

If the mother has not sufficient milk, she should take a cupful of hot milk or milk gruel half-an-hour before nursing. Stout (or other stimulant) is **not** necessary—a nursing mother should **avoid intoxicants**, but drink plenty of milk instead. *Be temperate in all things.*

At the age of SEVEN MONTHS, in addition to the breast milk, the child may get one or two meals a day of cow's milk, which, to begin with, should be slightly diluted with water. “Mixed” feeding is not injurious, and should be tried when baby *ceases to gain* properly in weight.

Weaning should be gradual. Never wean during July, August, September, if you can avoid it. If you do, there is a certain **danger** of baby dying from summer diarrhoea. The child should, as a rule, be completely removed from the breast by the age of NINE MONTHS. Suckling beyond this time is most **injurious to mother and child**, and it is untrue that the mother will not become pregnant while she is suckling. Take care that the baby has plenty of cow's milk after weaning; a healthy weaned child of 9 months old needs at least $1\frac{1}{2}$ pints of good scalded milk a day. By the time the child has 4 teeth it may have its milk thickened with baked flour, rusks, or a good patent food, *e.g.*, Mellin's. On no account give any sort of bread food before the teeth are through, as it causes indigestion and **convulsions**.

Note.—A child should have *no other food* than milk till the **age of nine months**, nor should babies ever get tea, stimulants, &c., “teething powders” or “soothing syrups.” The child should be washed all over in a warm bath once a day, and should be taken out into the fresh air every day, forenoon and afternoon, when the weather is fine. Children who are improperly fed or cared for get DIARRHOEA, SKIN ERUPTIONS, RUPTURE OF RICKETS, CONVULSIONS. If there be constipation, diarrhoea or sickness, or if child “wastes away” or does not thrive properly, take it without undue delay to a doctor for further advice. **Delay is often dangerous.**

Hand Feeding.—If the mother is unable to suckle, the child should be fed on **clean, fresh cow's milk**, and should have no other form of food until the age of EIGHT MONTHS. The milk should be procured fresh twice daily, and should, in summer months or when **diarrhœa** is prevalent, be immediately **boiled**. The best way to do this is to put the milk in a jar which is then placed in a saucepan containing boiling water, and the water should be kept boiling for fifteen minutes. In this way boiling over or burning of milk is prevented. **Cool quickly** under running tap so as to prevent rapid growth of unkilld germs. The most deadly germs in milk cause the least souring, and are the most difficult to destroy. So that no milk that is not quite sweet at time of being used should be given to any child. Keep milk **covered** in a clean, "scalded" basin or jug, in a clean and cool, well ventilated place.

During the first month or six weeks the child should be given the bottle every two hours in the day, and every four hours at night; after this age the interval may be gradually lengthened to three hours in the day, and six hours at night. The child should get the bottle at the same time every day. To begin with, the milk should be diluted with two parts of water to one part of milk, the amount of water being gradually lessened until, at the age of six weeks, half milk and half water are being used. A small teaspoonful of fresh cream and white sugar should be added to each average feed of milk (4 ozs.) for a baby 2 months old, both varying from $\frac{1}{2}$ to 2 teaspoonfuls according to age of baby below or above 2 months. If cream is not added the cow's milk given is not as rich as mother's milk, and the baby fails to get a proper amount of fat, so that it may not thrive and grow good bone and teeth, but instead develop **rickets, &c.** Each feed should be warmed to blood heat by placing bottle in jug or bowl of hot water—judge temperature by tasting milk after shaking bottle. At the end of the SECOND MONTH the child should be getting about one pint of cow's milk, at the end of SIX MONTHS about one pint and a half, and at the end of TEN MONTHS about two pints. After the age of six weeks the amount of water should be still gradually reduced to one-third, or one-fourth, or less, until the child is about seven months old, when pure milk should be given.

The best kind of feeding bottle is the plain, old-fashioned, straight or boat-shaped one, graduated in table-spoonfuls, **without tube**, simply with teat pulled over end of screwless bottle. The bottle should draw easily, and after each meal it should be washed out in boiling water, the teat turned inside out, scrubbed clean, and "scalded." On no account must the milk left be used again: prepare a **fresh feed** for **each meal**. Renew the teat once a month at least, for rubber fouls quickly and then infects the milk and baby. After thus **cleaning** and **scalding**, the bottle and teat should be kept separate in a bowl of clean water (containing half a teaspoonful of borax) till the next time they are used. Wash thoroughly again in fresh water before feeding. Have two bottles and use in turn. If brush is used, clean often in boiling water.

It is a **vital necessity** that both **milk, bottle, brush, teat, and all utensils**, be kept quite **clean, sweet, and free from germs**.

Never give the baby the bottle merely to keep it quiet. Do not let it suck an empty bottle else it will get "wind on the stomach."

This table gives the quantities suitable for a healthy child:—

AGE OF CHILD.	MILK.	WATER OR BARLEY WATER	TOTAL AMOUNT TO BE GIVEN AT EACH MEAL.	FEEDS PER 24 HOURS.
During first fortnight	1 Tablespoon	2 Tablespoons	3 Tablespoons	9
" 2nd "	2 "	3 "	5 "	9
" 2nd month	3 "	3 "	6 "	9
" 3rd "	4 "	4 "	8 "	8
" 4th "	5 "	4 "	9 "	7
" 5th "	6 "	4 "	10 "	7
" 6th "	8 "	4 "	12 "	7
" 7th "	Milk practically unmodified.		13 "	6

No absolute rules can be given for infant feeding; children's stomachs and digestions vary as much as their faces. What is **food for one baby** may be **poison for another**. Every **mother**, therefore, must **study** her **baby**, and judge, with the **help** of her **doctor**, as to the amount and kind of food to be given.

If water is used to dilute the milk, it must first be boiled. If baby is constipated use barley water; if loose, add lime water in place of $\frac{1}{2}$ water. Two teasp. of lime w. to each feed of milk & b.w. is helpful. Thus the tough **curd** of cow's milk is lessened and helped to digest.

If cow's milk thus modified still causes "**milk indigestion**," do not let the baby continue to **suffer and waste**—**consult the doctor**—for it may be necessary to further dilute, "doctor," "modify," predigest, or replace cow's milk altogether.

UNDER EIGHT MONTHS do **not** give the child "starchy" foods, such as arrowroot, cornflour, bread sops, biscuits, &c.—or any patent infants' foods (many are "starchy"),—without medical advice.

AFTER SIX MONTHS one or two feeds a day of milk, thickened with "Horlick's Malted Milk" or "Mellin's Food," **may** suit baby.

A good condensed milk, *e.g.*, Nestlé, a teaspoonful to six tablespoonfuls of boiled water, may—if **cow's milk cannot be digested**—prove useful for **short periods only**, but in a month, or less, cow's milk, suitably modified, should again be tried. **Stop** after sixth month else **anæmia**, **scurvy**, or **rickets**—fat too little: sugar too much.

"**Skimmed**" and "**separated**" milks are **useless** as foods. "Patent Foods" and "Condensed Milks" are more **expensive** and much **inferior** to cow's milk; most of them are deficient in fat, or contain **starch**, which the young **baby cannot digest**. Such **starchy foods** either cause **rickets** and bone disease, or act as **irritant poisons**, and excite vomiting, diarrhoea, and perhaps death. In this way many an ignorant mother has tortured and killed her child. **EXAMINE LABELS** on condensed milk tins before buying.

N.B.—**Danger of overfeeding**. If baby is fed too often, from **bottle or breast**, or "whenever it cries," it will suffer from indigestion, colic, and diarrhoea. A baby's **cry** may mean **thirst** for **water**, or **pain** in the stomach, so that a teaspoonful or two of cold water often comforts the baby before feeding time, and less food, by resting the stomach, may relieve the "stomach-ache." The latter may mean "milk indigestion" from causes other than "overfeeding." A **doctor's** advice and **prescription** is now **worth more** than any "**soothing syrup**."

Some mothers may find it simpler to prepare the feed of Cow's MILK in this manner:—

Half-a-pint of good fresh milk and one pint of water with a small teaspoonful of white sugar are mixed and boiled, and then placed in a clean jug, and covered with a clean cloth. Four tablespoonfuls of this should be placed in the feeding bottle each time it is used, and the bottle "scalded" afterwards and kept when not in use as described. The infant should not be fed oftener than every 2 hours in the daytime, and every 4 hours during the night. This will be the diet up to the age of 6 weeks, one or two more tablespoonfuls being given as the child can take it.

When the child is 6 weeks old, one pint of cow's milk may be added to one pint of water, and from 6 to 8 tablespoonfuls used to each meal, the interval between meals being increased.

At the ages of 3 to 6 months, two pints of cow's milk should be mixed with one pint of water, 8 to 10 tablespoonfuls being used for each meal. The intervals between meals, and the quantity used at each meal may be increased as occasion requires. But it is necessary always to bear in mind the danger of over-feeding. In all cases the mixture of milk and water should be boiled and kept covered in a clean "scalded" jug. Only a quantity sufficient for one feed should be got ready at one time.

The above directions furnish a food on which children may thrive, but it is poor in cream as compared with mother's milk, and those who can afford the extra milk would do better to proceed in this manner:—

For infants under 6 weeks old purchase a pint of rich fresh milk in the evening and half-a-pint in the morning. Place the evening pint in a clean shallow bowl, cover with a clean plate, and put in a basin of water for coolness. In the morning skim two tablespoonfuls of cream from the bowl, and add it to the fresh morning half-pint in a tin can or jar. Add also a small teaspoonful of sugar, as much bicarbonate of soda (NOT washing soda) as will stand on a sixpenny piece, and a pint of water. Then boil as described, pour the mixture into a jug freshly cleaned with boiling water, and keep covered, &c. This preparation will have to last for 24 hours, and 4 tablespoonfuls should be placed in the feeding bottle each time, and given as before.

When the infant is 6 weeks old, the same amount of cream must be added to the PINT of new milk now required in the morning, with sugar, bicarbonate of soda, and a pint of water as before; 8 tablespoonfuls may now be used for each meal, passing GRADUALLY from four to eight.

After the age of 3 months the amount of milk required in the morning will increase to $1\frac{1}{2}$ pints (less or more) at the age of 6 months. Now add 4 tablespoonfuls of cream, then sugar, bicarb. of soda, pint of water and boil, as before. The skim milk left can be used to make a pudding.

When CONDENSED MILK is used, mothers should be careful to get only the BEST BRANDS, and the unsweetened milk should be preferred. They should always ascertain that they are getting UNSWEETENED WHOLE MILK. The milk should be diluted according to the directions given on the tin, which renders it necessary to get for infants only UNSWEETENED WHOLE MILK. The milk diluted as shown on the tin (2 water to 1 milk) should be tried without further dilution. (Dr. Niven.)

WHAT TO DO.

ALWAYS feed the baby at regular intervals, every two hours at first, gradually lengthening the interval to three hours.

[If the baby does not thrive on ordinary milk, either the milk is poor, or the method of feeding requires to be altered.]

ALWAYS wash out the baby's mouth twice a day, night and morning. [Take a piece of clean rag, fix it firmly round the washed finger, dip it into clean water, and wash the gums and roof of the mouth. Burn the rag. Use a fresh piece each time.]

ALWAYS keep the baby very clean. [N.B.—Soiled napkins are “infective.” It is no sufficient precaution against indigestion or diarrhoea to feed an infant carefully if its clothes are allowed to remain dirty, especially after it has been sick.]

ALWAYS bathe (or sponge all over) the baby once a day in warm water. [Cleanliness comes before godliness in rearing a baby.]

ALWAYS let the baby sleep in a cradle or cot; a wicker basket makes a good cot (or even an empty packing-case). But never let the baby sleep in the same bed with its mother. [Impure air. Danger of overlying. 80 to 100 preventable deaths from this cause occur every year in Manchester alone.]

ALWAYS use Fuller's Earth to powder the baby, not starch or flour.

ALWAYS attend to the baby when it cries. The baby cries for one of three reasons—

- (1) The baby is hungry; or
- (2) The baby is uncomfortable, or something hurts; or
- (3) The baby is ill.

[N.B.—Feed the baby by the *clock*, **not** by the *cry*!]

WHAT NOT TO DO.

NEVER give the baby soothing syrups, fever powders, or anything of that sort.

NEVER give the baby bread, or sops, or gravy, or any other food, except milk, till it is more than seven months old.

NEVER give the baby skimmed milk, or milk that is not perfectly fresh and good.

NEVER use a feeding bottle with a long tube. Nobody can keep the inside of the tube clean.

NEVER use a “comforter” or dummy teat. It is most injurious. [Thumb or finger sucking may cause irregularity of the teeth.]

[NEVER let a baby crawl on a dirty and draughty floor. If its hands are allowed to become dirty, it will suck off the dirt as it does from a “dummy,” and all the benefits of proper feeding may be destroyed by this filth “infection.”]

NEVER carry the baby “sitting up” until it is five months old. [Beware of mailcarts for infants under 18 months. Babies should take their airing lying down.]

NEVER neglect to send for a Doctor if the baby is ill. Babies are soon overcome and easily die.

(Extracted from the Huddersfield “Feeding Instructions,” (with bracketed additions) by kind permission of the Medical Officer of Health.)

DIETARY FOR CHILDREN.

AT NINE MONTHS of age, and if teeth are present—for neither babies nor adults can chew without teeth—the child may have bread and milk, bread and butter, milk pudding, a little red gravy with bread crumbs or a little mashed potato, **or** the yoke of a lightly boiled egg, once a day, at the mid-day meal. It is advisable to vary the diet of a child occasionally.

AFTER NINE MONTHS, mutton broth, beef tea, or bread fried in bacon fat, may be gradually added to the diet. An egg daily mixed with milk, or boiled lightly, or made into a pudding with milk and butter is an excellent thing. Broths should be strained, and solids well mashed.

AT ONE YEAR.—For breakfast a good half-pint of milk with a little bread in it, or bread and butter, occasionally an egg lightly boiled, and thin oatmeal porridge. At 11, a little more milk. For dinner, broth, beef tea, boiled fish well minced, or pounded underdone meat by turns, with a tablespoonful of either well mashed greens or potatoes well soaked in gravy, and a tablespoonful of milky rice or custard pudding. For tea, bread and butter, and a good half-pint of milk. A little milk later in the evening if necessary.

FROM ONE TO TWO YEARS OLD.—Until the child is eighteen months old it should be fed at least five times in the twenty-four hours.—viz., about 8 a.m., about 11 a.m., about 2 p.m., about 6 p.m., and about 10 p.m. The last meal in the day should consist simply of a drink of milk. The first (8 a.m.) and the fourth (6 p.m.) meals may, for the older children, consist of a rusk or a slice of stale bread soaked in milk, or a teacupful of oat-flour porridge; breadberry made very soft is suitable for the younger ones. The second (11 a.m.) should consist of a drink of milk and a plain biscuit or bread and butter. The third meal (1 or 2 p.m.) may alternately consist (1) of a cup of good beef-tea or strained broth, pea soup or lentil soup, followed by a tablespoonful of light milk pudding; or (2) of a well-boiled potato bruised in good beef gravy, with a cupful of sweet milk.

After the age of eighteen months only four meals are necessary for a healthy child. The first, second, and fourth meals may be similar to those above, but bread may be given with butter or good bacon gravy, and sometimes a soft-boiled egg. Oatmeal may now take the place of oat-flour. For dinner, at 2 p.m., a little fish or minced meat may now be given alternately with beef-tea or strained soup, in addition to light puddings and sweet milk.

Fish or meat should not be given before the child is EIGHTEEN MONTHS old. When given it should be finely minced. Children, especially those **under three years** of age, should *not* be fed upon “just what the parents have,” and other children should not be allowed to give it “little bits.” Watch over the child’s feeding most carefully lest **you cause convulsions and death.** Study these rules and apply them.

DIETARY FOR CHILDREN.

TWO YEARS AND UPWARDS.

Children should be encouraged to take plenty of open-air exercise ; they will thus be the more able to digest good wholesome food.

A child should be trained to eat its food slowly and to CHEW IT WELL. To assist in the thorough chewing of food, butcher meat should always be cut into small pieces or minced. The child should not be allowed to drink till it has finished eating. [Drinking with food encourages bolting.]

Milk is not only the best but it is the cheapest form of food, and up till the age of 8 or 9 years, milk, and things made with milk, should form the chief part of the child's dietary.

The following are some of the best and most economical foods for children :—Oatmeal porridge and milk ; peasmeal porridge and milk ; bread (not new) and butter or margarine, or bread soaked in ham fat or dripping ; oat-cake ; potatoes (mashed or grated) with suet, dripping, margarine or butter ; broth or soup made with a piece of mutton, a bone or a ham shank, and in addition potatoes, barley, lentils, peas or beans ; mutton ; fresh fish ; boiled rice or sago with sugar ; stewed fruits, as rhubarb, apples, &c. Lentils or peas [with "stock"] make a good soup.

Children should have four meals a day, but meat only at one. Children should be fed by regular meals and not by "pieces." A child who gets four regular meals needs nothing between them, and habits of regularity are soon learnt.

The following Table will give some idea of what should prove a diet scheme suitable for a healthy child under the age of 8 or 9. (The plan here shown may, of course be modified, both as regards hours and character of the food, to suit special cases and circumstances.)

BREAKFAST, 8 or 9 a.m.—Porridge and milk, with bread and butter ; sometimes an egg or a little fish, with plenty of milk.

DINNER, 12 or 1 p.m.—Broth or soup, and bread or potatoes ; a little well-boiled fresh vegetables ; a little butcher's meat ; well-boiled rice and milk, or cornflour.

TEA, 4 or 5 p.m.—Milk or cocoa, with bread and butter.

SUPPER, 7 p.m.—Porridge and milk.

General Precautions.—No young child should be allowed just to take the "run of the house" or "what's going." Jellies and jams should not be given to the child in place of butter. Though cheaper and more pleasing to the child they are a poor substitute for butter or margarine, but may be given in addition to these. Unripe fruits, pastries, cheese and smoked fish disagree with children. Condensed milk is a poor substitute for fresh milk or skim milk. A good proportion of fat should be given. When it cannot be taken as fat of bacon or of meat it should be given as cream. Tea or coffee should not be given. Whisky or any other intoxicating liquor should *never* be given on any pretence. It is the duty of the mother to teach the child regular habits with regard to the motion of the bowels. [Constipation calls for more fat, fruit or vegetables.]

(Royal Hospital for Sick Children, Glasgow.)

DIET IN CONVULSIONS AND EPILEPSY.

Fits, whether epileptic or not, in older children as in younger, require for their treatment most careful dieting. It is better to give food "mixed" in character, and MODERATE in amount so as to avoid overloading the stomach. Bolting of food should be checked, and thorough mastication encouraged. Constipation **must** be cured. For breakfast—cocoa, with lightly boiled egg and cold buttered toast; dinner—a moderate quantity of beef, mutton, or poultry, tripe or codfish, with tender vegetables; milk pudding; stewed fruit. Tea—cocoa or milk, toast, with treacle or honey. Supper—milk with a slice of thin bread and butter.

The diet **must** be carefully selected and frugal, much milk is bad. For the constipation give a little cascara (part of a tablet, or a few drops of the extract) at night, followed in the morning by a quarter or half a seidlitz powder in a *little* water, or some aperient water like Hunjadi Janos, as soon as the child gets up, and one hour before breakfast. The night and morning doses should be so regulated, *i.e.*, stopped, diminished, or increased, as to obtain a daily free opening of the bowels.

Epilepsy—Select food from milk, eggs, butter, cheese, rice, macaroni, tapioca, white bread, potatoes (little), cabbage, lettuce, cauliflower, peameal (little), sugar, and fruit. Of meats give preferably tripe, neck of pork, codfish. Avoid tea and coffee, exclude salt as far as possible from the dietary, and most kinds of fish and meat.

N.B.—Advertisers who write "I cure fits" ARE ABSOLUTE QUACKS.

DIET TABLE & INSTRUCTIONS FOR RICKETY CHILDREN.

TWO TO SIX YEARS.

FIRST MEAL, 7 a.m.—Bread and milk, or oatmeal or hominy porridge with plenty of milk; bread and butter or bread and dripping with a lightly boiled egg or a little fat bacon.

SECOND MEAL, 11 a.m.—Cup of milk with rusks, plain biscuits, or bread and butter.

THIRD MEAL, 1-30 p.m.—Bread crumbs and gravy or potatoes and gravy; fresh fish or finely minced meat with bread crumbs; milk pudding, stewed prunes, or baked apples. [Underdone scraped meat is good for the child.]

FOURTH MEAL, 5 p.m.—Milk, or cocoa and milk, with bread and butter or bread and dripping.

FIFTH MEAL, half-hour before bed—Bread and milk. [The child must **not** have condensed milk or patent food, tea, coffee, beef-tea, Bovril, sweet cakes, biscuits, or jam.]

The child should be taken out whenever the weather is fine but should not be allowed to stand or walk until the doctor gives permission.

It should have the juice of an orange or fresh green vegetables at least three times a week. [No food must be given between meals.]

If splints are ordered they should be taken off and re-applied night and morning. Great care must be taken to avoid causing sores. (Manchester Children's Hospital—adapted.)

GENERAL DIRECTIONS FOR THE CARE OF THE CHILD.

Cleanliness.—Infants must be given a warm bath at least once a day, and mild soap should be used to every part of the body, including the head. The whole of the body should be carefully dried with a clean, dry, soft towel, and then dusted with boric acid 1 part, starch 2 parts, especially about the buttocks and the folds and creases of the skin. If the head is not washed scurf will form. This is easily removed by rubbing the scalp gently with a little oil. Infants should not be allowed to lie in wet or soiled napkins. The part covered by the napkin should be bathed and powdered each time the napkin is changed. In chafing of the skin, or severe "scalding under the napkins," a grease consisting of equal parts of zinc and boric ointments and vaseline may soothe and protect the skin better than powder. It acts on the same principle that "water runs off a duck's back." If baby wets its clothes, or is sick on them, change them as soon as possible. Keep the infant's hands clean, and take care that it does not put dirty fingers or clothes into its mouth, as it may thus get thrush, indigestion, and diarrhœa. THRUSH or frog is a dangerous affection, and is QUITE PREVENTABLE. When cleaning baby's mouth be sure your hands are perfectly clean first. **Keep the house scrupulously clean.** Crumbs and particles of sugar or syrup attract flies which bring dirt and infection. *The infant must always be kept perfectly clean.* Put on a clean apron before handling your child. Do not place the baby on a dirty floor or else it will be injured both by dust and draughts. Do not let your child lie about in the morning in its night clothes until you "can find time to wash it."

Furnish your rooms plainly; avoid knick-knacks and draperies that collect dust, and require care which had better be devoted to the child. Plain furniture is cheaper, and can be more easily cleaned and moved about when the rooms are done, or at spring cleaning. Remember that cheap upholstered furniture is often stuffed with filthy and infected rags or other abominations. Children delight in picking holes and playing with rubbish! *Therefore do not lay up for yourself stuffing that corrupts.* Cover the bedroom floor with linoleum, or place a cheap square of carpet, or mats, about the bed. If possible, have a washable paper on the walls, or, better still, apply distemper or "duresco."

Clothing.—The infant must be warmly but loosely clothed, including the arms and legs, and so as not to hinder free breathing or movement of the limbs. The clothing should be of flannel or wool. Remember the danger of child burning from "the deadly flannelette." An over-clothed or "coddled" child is sensitive to chills, and easily contracts bronchitis and diarrhœa. A flannel binder (not tight) should be worn until the child is able to wear knickers or combinations. Exposure of bare arms and legs is responsible for many deaths. Clothing which has become wet or dirty ceases to protect against cold, and is otherwise injurious. All dirty or wet clothes, or napkins, must therefore be removed at once, and are not to be used again without being washed. Never forget that soiled napkins should not be allowed to dry, but should receive a rough washing at once. Then soak in plain water, and when convenient wash in hot suds, and boil for 15 minutes. Afterwards rinse thoroughly in PLAIN water, dry, and iron. Never use a damp napkin.

Air and Light.—Fresh air and sunlight, *indoors* and outdoors, are most necessary and beneficial for the baby. Keep the window ALWAYS open (unless fog) in sleeping and dwelling room, by adopting the “costless method of ventilation.” This is done by placing a board 3 ins. deep—and the width of the window—beneath the raised lower sash. The room should be thoroughly aired twice a day at least. The chimneys should never be stuffed up or the registers closed. The fear of fresh air is at the root of many evils! Night air does not injure even a “consumptive”! Infants, like plants, require sunlight for their growth. Take your baby out as much as time and weather will allow into the cleanest and most open space you can find. Indoors, cold weather means fires, or a hot bottle in the cot—not shutting of windows: outdoors, warm clothing or a hot bottle in the peram—not “bottling up” of baby in the house! Baby must not be treated as a “hot-house” plant, if it is, it becomes pale and listless from poisoned blood, gets indigestion and sickness from poisoned stomach, stops gaining in weight, perspires freely, and takes cold easily, or develops serious illness like bronchitis or pneumonia from poisoned lungs and enfeebled system.

Sleep.—Infants require plenty of sleep especially the first 3 months. Up to 3 years old, a morning and afternoon sleep, at fixed hours, is necessary. Accustom them to going to bed while yet awake, and avoid, as far as possible, nursing them to sleep in the arms. If possible, the infant should sleep in a cot by itself, else there is a danger of its being OVERLAIN—especially if its *parents are drunken*—and breathing impure air. The best cot for the poor baby is a clothes basket, or even a packing case, containing a thick bed of bran covered over by a thick, soft cloth. Renewal is easy and the mother’s burden is light.

Quiet peaceful sleep is one sign of perfect health. Sleep is disturbed by almost anything which is wrong with the child. A few causes are:—chronic indigestion, too frequent night feeding—“an infant who is fed three or four times during the night is almost invariably a bad sleeper” (Dr. Holt), cold feet, wrong clothing (too much or too little), foul air in the bedroom, difficult breathing from enlarged tonsils or adenoids. A child sleeping face down suggests enlarged tonsils. Sleeplessness may be due to bad habits acquired by faulty training. Do not take a baby from its crib whenever it cries or wakes. Do not excite the child by vivid pictures or stories, or allow romping play with father just before bed-time—especially if the child has a nervous temperament. Children who are not thriving or are “out of sorts,” who are bothered about lessons, or are driven too hard at school, suffer from sleeplessness. “Rocking” is injurious and unnecessary. Never use soothing syrups or other sleeping medicines. All successful treatment of disorder and disease consists in the DISCOVERY AND REMOVAL OF THE CAUSE.

Children are creatures of habit, and acquire good habits just as easily as bad. *Therefore train up a child in the way it should go.*

Suitable fireguards should be provided to prevent accidents.

“‘Flannelette, the absence of fireguards, and slatternly women who will not dress their children before the middle of the morning are three causes of more accidental deaths among children than any other,’ exclaimed Coroner Hill at Brighthouse during an inquest on a burnt child.”

ATTEND TO THE BOWELS!

Most of the digestible portion of the food is absorbed by the time it reaches the large bowel. The large bowel is concerned with the regular removal or scavenging of the "waste" matter from the body. To prepare for this the large gut gradually absorbs the water from the thick fluid entering it from the small gut, and makes it more solid and suitable for evacuation. If the bowel is irritated or inflamed by bad or indigestible food, or by disease, these natural arrangements are completely upset. For not only are the contents of the intestine passed from the body too frequently (*diarrhœa*) and the water does not get time to be absorbed, but water, slime, and perhaps blood are poured from the inflamed bowel, giving rise to loose, unnatural motions. On the other hand, when the bowels act less often than once a day, too much water is absorbed, and the motion (or matter passed) becomes very solid and hard. This condition is called costiveness or constipation, and means IMPROPER FEEDING, deficiency of water and fat, NEGLECT, too little exercise, or—disease.

Constipation.—Habitual costiveness or *chronic constipation* is a common cause of bowel trouble, *e.g.*, catarrh, colic, prolapse or fall of the seat, and slight ailments like headache or bilious attacks. In adult life it is the cause of much misery and suffering. Care should be taken that the bowels are not neglected, and a regular action should be secured each day, as a **bad habit developed in childhood may remain throughout life**. To avert this catastrophe, children should be taught and encouraged to form a habit of relieving the bowels regularly at the same time every day, say after breakfast. When, however, the desire for relief comes, it should be attended to without needless delay. A mock modesty should not be allowed to quell Nature's call.

Diet—Older children should be given plenty of fruit and vegetables prepared, if need be, with salad-oil, which is laxative. Brown bread, oatmeal as porridge, Scotch oat-cake, bran biscuits. Give drinks of cold water *between* meals. Teach the child to rub and thump the belly to improve the tone of the bowel (massage). Encourage outdoor exercise with plenty of roll and tumble of the "runabouts." Give drugs, &c., last of all, as they are usually of least importance.

Diarrhœa.—Bad, indigestible, or unsuitable food and fruit may irritate or inflame the bowel and cause diarrhœa. Unripe or over-ripe and rotten fruit, stale and partially decomposed meat [especially in the form of pork pie, sausage, or tinned things]—all annoy the gut, and often excite a catarrh of the bowel and very severe diarrhœa which may prove fatal. In hot weather germs grow very quickly, and now, owing to the rapid growth of microbes in food, fish, meat, and milk, these are likely to go bad quickly and give rise to diarrhœa or ptomaine poisoning. Many babies fed on cow's milk die from diarrhœa on this account in July, August, and September every year. This may be prevented, to a great extent, by boiling all milk. This kills the microbes and renders them harmless. It is very necessary that all food liable to go bad such as MILK, MEAT, SOUPS, &c., should be kept in a COOL, CLEAN, PLACE to which AIR and LIGHT have free access.

Diet—Judicious starvation. Prevention consists in children eating the things they ought to eat, and in avoiding those things they ought not to eat.

CARE FOR THE TEETH OF THE CHILD!

Note that the teeth are formed very early in life, and that an infant requires to be well fed from birth in order to get a good set. Breast-fed children have the best teeth, those fed on cow's milk rank next, but when babies are fed on starchy food, skimmed milk, or patent food, the teeth, both temporary and permanent, are ill developed and prone to decay. *The teeth suffer with the bones and general health of the child.* All the temporary (milk) teeth, twenty in number, should be cut at two years of age. These have to do the chewing until the permanent teeth (32) begin to appear at six years. A mother **must** care for the milk teeth of her child if strong permanent teeth are to be expected. Every child ought to be provided with a tooth brush, and it is the duty of the mother to see that the child uses it every night and morning. In the case of young children, the mother should herself gently brush its teeth with a small soft brush, using some agreeable antiseptic tooth paste like euthymol, (P. D. & Co.) or tooth soap. A powder should only be used once or twice a week in order to assist the removal of tartar. The teeth should be brushed all over, and special care should be taken to brush well the tops of the back teeth. In cleaning the teeth an up and down movement of the brush is better than one from side to side. In this way the food is removed from the spaces between the teeth where it commonly lodges and putrefies. A deposit of tartar should be at once removed from ALL teeth, as it loosens them, and may result in their loss.

It is most important to clean the teeth at night before going to bed, as it is during the night that any residue of food has time to ferment, and so make the acid which attacks the enamel. The outside of a tooth is composed of a hard, ivory-like substance called *enamel*. Beneath the enamel, and forming the body of the tooth, is the bone-like *dentine*. Inside each tooth is a little room containing the blood vessels and nerves—the *pulp chamber*. When the enamel and dentine are damaged, as in decay, the nerves of the tooth become inflamed and very painful. This is toothache. Sugar and sweets are bad for the teeth. Why? Sugar is changed into acid in the mouth. If the mouth is neglected, and this acid allowed to remain, it eats away the enamel or "armour plate" of the tooth, dissolves out the lime from the dentine, and then allows the germs (always present in the mouth) to enter and eat the tooth, and decay it. Another reason—an excess of sugar excites indigestion and causes ill-health, and, therefore, an unhealthy state of the mouth, as is evidenced by the furred tongue, nasty taste, and sour breath. Such a dirty mouth makes a splendid breeding place for germs.

The teeth should be regularly inspected by a *qualified* dentist, so that a decayed tooth can be filled in time, or irregular teeth corrected without delay. NEVER ALLOW ANYONE BUT A QUALIFIED DENTIST TO EXTRACT A CHILD'S TOOTH. A "stopped" tooth is better than an artificial one. A filling in time saves many extractions. NOTE—the worse the decay, the more difficult, expensive, and painful it is to stop and save the tooth.

The large double teeth which a child cuts at the age of six years are *permanent* and require special care—because they are permanent grinders, and prone to decay. Decayed teeth cause ill-health and enlarged glands.

N.B.—Good teeth—good mastication—good digestion—good health.

"MILESTONES" IN THE DEVELOPMENT OF THE CHILD.

Every mother and nurse should be familiar with what Dr. Robert Hutchison in his "Lectures on Diseases of Children" has aptly called "**Milestones**" in the development of a normal child:—

1. **Teeth.**—The baby begins to cut his teeth at 6 months, and has all his milk teeth (20 in number) at the age of 2 years. A baby of 12 months should have 12 teeth. The permanent teeth (32 in number) begin to come at 6 years instead of 6 months, and at 12 years all except the wisdom teeth are present. [Delayed teething often means rickets. N.B.—*Teething powders destroy the teeth*].

2. **Bone.**—The "anterior fontanelle" (the hole in the bone on the front and top of the head) should be closed between the 18th and 24th month. [If not closed by 24th month, there is SOMETHING WRONG, e.g., rickets.]

3. **Muscle.**—A healthy baby holds up his head at 3 to 4 months—before this it merely waggles on the neck. The infant should sit up at from 9 to 12 months, walk at from 12 to 18 months, talk well at 2 years. [If the child does not, beware of rickets, paralysis, or brain weakness.]

4. **Weight of baby.**—At birth the average weight is 7 lbs., at 5 months it is 14 lbs., at 18 months 21 lbs., at 6 years 42 lbs., at 14 years 84 lbs. Note the doubling of the sevens as it assists memory. The rise in weight in the early months is greater than later on, but roughly throughout the twelve months of infancy the average increase is *one pound a month*. For example, a child 12 months old weighs 19 lbs.—7 lbs. at birth + 12 lbs. (one lb. gain per month) = 19 lbs.

5. **Length of baby.**—At birth the average length is 19 inches. It should be 38 inches at end of 4th year. Relative undergrowth in height and *loss of weight* in childhood is always a Danger Signal.

6. **Circumference of head.**—13 inches at birth; at the 9th month 17 inches; at 1 year 18 inches; at 5 years it has only grown another 2 inches. THE ENORMOUS RATE AT WHICH THE CHILD'S HEAD GROWS DURING THE FIRST YEAR OF LIFE IS DUE TO THE RAPID ENLARGEMENT OF THE BRAIN.

7. **Character of motions.**—For the first 8 weeks there should be three or four motions daily. This must not, therefore, be regarded as a sign of diarrhoea. For the first few days after birth the stools are greenish-brown and treacly. In a few days they become yellow, like beaten-up eggs, or thick mustard, in colour and consistence, and scarcely smell unpleasantly. Look for cheesy masses of curd in them, for if you find these you know that the child is getting more milk than he can properly digest. Up to the end of two years from about the 8th month there is an average of two motions daily. They now become stronger in smell, browner in colour, and more porridgy in consistence. After two years the motions are well formed and like that of the adult.

[N.B.—If the motions are green and putrid, the bowels are wrong, and the feeding is at fault. So correct the feeding, and cleanse the bowels with a dose of castor oil. Costive and putty-like motions show want of bile. A grey powder or two will improve matters. Acid, irritating motions cause "scalding under the napkins," and call for more lime-water and a change in the feeding. Soiled and wetted napkins should be removed AT ONCE. Slime and blood in the motions means "inflammation."]

RECIPES.

Lime-water.—Put a lump of freshly burnt lime (to be got at any builders' yard) as big as an egg into a basin, sprinkle cold water over it to slake it. Then put it into a large, clean, wine bottle, fill with water, cork, shake well, and let it stand for 24 hours. It will then be clear, and what is required can be poured off from time to time, taking care not to shake the bottle. Some undissolved lime will remain at the bottom, and while any of this is left the bottle can be filled up with water again as it is drawn off. Keep well corked.

Barley-water.—To make of average strength add two teaspoonfuls of Robinson's Prepared Barley (in powder) to one pint (two tumblerfuls) of water, and then simmer gently for fifteen minutes, strain and mix with the milk. Make fresh each day and keep covered in a cool place.

Oatmeal-water, Rice-water.—Made in the same way by substituting prepared oatmeal flour or ground rice, and mixing in the same proportions. [When babies are very costive, boil a teaspoonful of oatmeal in $\frac{1}{4}$ of a pint of water, with a little salt, for 15 minutes, strain and mix with half as much boiled milk, and a lump of white sugar. Give this instead of the milk and water.]

Beef-tea.—Take 1 lb. of beef-steak, remove all fat and gristle, shred it, or cut it up into small pieces, place it in an earthenware jar with one pint of cold water and half-a-teaspoonful of salt. Allow it to lie for one hour. Place the jar, which should be provided with a lid, in a saucepan containing water. Allow to simmer gently (*not* boil) for six hours. Then strain off through a coarse sieve, and flavour to taste. Instead of simmering in a saucepan of water, the jar (covered) can be kept in the oven for several hours. Add water to make up for loss by evaporation.

Mutton, Veal, or Chicken may be substituted for beef.

Raw Meat Juice.—Scrape $\frac{1}{4}$ lb. of fresh, raw beef into a saucer and sprinkle over it a little fine salt; add two tablespoonfuls of cold water. Stir well together, and press the meat with a spoon. Allow it to lie covered in a cool place for an hour, pound again, then strain the juice through washed muslin by twisting it. It may be given cold or slightly warm as directed.

Mutton or Chicken may be substituted for beef.

Whey.—Add a teaspoonful or two of Benger's Artificial Rennet to a pint of warmed milk. When the curds have separated from the whey, break them up finely with a fork, and strain off the whey through muslin or a fine wire sieve. "Scald" the whey to destroy the rennet, and cool quickly under tap.

White Wine Whey.—Bring to the boil one tumblerful of milk (half-a-pint) in a saucepan, then add one wineglassful of good sherry. Boil for a minute or two, then pour into a clean basin and allow to stand in a cool place until the curd settles. Pour off the whey carefully or strain through muslin.

Albumen water (egg water) —The white of one raw fresh egg, half-a-pint of cold water, pinch of salt, one teaspoonful of brandy. Shake thoroughly. Feed cold either with a spoon or from a bottle.

Peptonised Milk.—Use "Fairchild's Peptonising Powders" according to instructions enclosed.


SOME POINTS TO REMEMBER.

The natural food of the infant is its mother's milk. **Do not be deceived—no other food** is "just as good." It cannot be urged too strongly that a healthy mother should, whenever possible, suckle her child, in part, if not altogether. That a mother should be able and willing to do this is a matter of supreme **importance** for **herself**, the **child**, and the **nation**.

Many a mother might be enabled to nurse her child with profit and success if she only sought timely medical advice for herself or child, or were granted some **municipal** or **state aid**.

"Mixed feeding" is not injurious; a little loaf is better than no bread! Do not forget that the **bottle brings trouble** for the **mother** and **suffering** for the **child**. For the breast-fed child is—as a rule—stronger, ruddier, brighter, healthier in every way; suffers less from colic, vomiting, diarrhœa, rickets, fits, and all other infantile disorders. **All diseases of baby are worse and more fatal when it is hand-fed.**

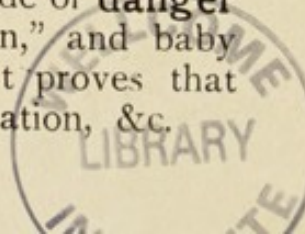
Thus the chances of a hand-fed baby reaching the age of one year are much less (one-third) than those of a child nursed by a healthy mother. About **one-fourth** of the **total** deaths are in infants (mostly **hand-fed**) under **one year** of age. Of every seven children born one dies before the end of a year. Under five years of age the death-rate is much higher. The mortality is double in illegitimate children. This means a fearful wastage in child life.

 *Parental ignorance is largely responsible for this.* Municipal and Education Authorities are largely responsible for parental ignorance, by neglecting to provide home instruction or school teaching on "How to live," and "How to rear the child."

It is a fact that a **large number of bottle-fed** babies are **dead** or **diseased** by the **end** of the **first twelve months**, and of the survivors about one-half are injured for life by faulty upbringing and artificial feeding.

This **cruel sacrifice** of **babies** would largely be **prevented** were mothers instructed by medical men, and assisted by "health visitors" in their homes; or were babies provided with **proper milk**, and regularly **inspected** and weighed by medical men at "**milk depots**" or "**milk dispensaries**." By the adoption of such methods **more** mothers feed their **babies** at the **breast**, infantile **death-rate** is **reduced**, infantile **diarrhœa** **disappears**, and stronger, **healthier children** which resist every ailment better are seen.

N.B.—A healthy baby should gain from four to six ounces in weight every week. On an average a baby should **double** its **weight** in the first **five months**. The gain or loss in **weight** is the readiest **indication** of the **baby's health**, and is a guide or **danger signal** to the mother. For food may "stay down," and baby keep quiet, yet **absence** of suitable **gain** in weight proves that baby is not thriving, but perhaps **dying** from starvation, &c.





BIRKENHEAD :
Brimmell's Printing Works, Oxtou Road.

—
1906.

EXTRACTS FROM PRESS NOTICES.

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