

# CHARLES WEST

THE MOTHER'S MANUAL  
OF CHILDREN'S  
DISEASES

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of Children's Diseases**

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## **The Mother's Manual of Children's Diseases**

### **THE MOTHER'S MANUAL OF CHILDREN'S DISEASES**

#### **PART I. *INTRODUCTORY***

#### **CHAPTER I. ON THE MORTALITY OF CHILDREN, AND ITS CAUSES**

The purpose of this little book will probably be best attained, and needless repetition best avoided, if we begin by inquiring very briefly why so many children die, what general signs indicate that they are ill, and what general rules can be laid down for their management in sickness.

The first of these inquiries would be as useless as it would be sad, if the rate of infant mortality were fixed by determinate laws, such as those which limit the stature of man or the age to which he can attain.

But this is not so; the mortality in early life varies widely in different countries, in different parts of the same country, and in the same country at different times. Thus, while in some parts of Germany the mortality under one year was recently as high as 25 to 30 per cent. of the total births, and in England as 15, it was only a little above 10 per cent. in Norway. Infantile mortality is higher in manufacturing districts, lower in those which are agricultural, and varies from 16 per cent. in Lancashire to 9 in Dorsetshire. It is then evident that mortality in infancy is in part dependent on remediable causes; and of this there is no better proof than the fact that the mortality in England under one year has been reduced from 15 per cent. in 1872 to 13 per cent. in 1882.

It would lead us far from any practical purpose if we were to examine into all the causes which govern the liability to disease and death during infancy and childhood, in the different ranks of society. We must therefore limit our inquiry to those conditions which are met with in the class to which my readers may fairly be assumed to belong.

*First* among the causes of sickly infancy and premature death may be mentioned the intermarriage of near relatives. The experience of the breeders of animals, who, by what is termed breeding in and in, undoubtedly obtain certain qualities of speed, or strength, or beauty, does not apply here. They select for their experiments animals whose qualities in these respects are pre-eminent, and eliminate from them all who do not occupy the first rank. In family intermarriages, however, it is rare that any consideration is regarded, save that of wealth; and the fact remains, explain it as we may, that the intermarriage of near relatives during several successive generations is followed by a marked deterioration of the children, physical, mental, and moral; and by the intensifying of any hereditary predisposition to consumption, scrofula, and other constitutional ailments which form the *second* great cause of early sickness and mortality.

These are facts known to all, which yet it is not easy to represent by figures. All the world is aware that consumption is hereditary, that consumptive parents are more likely than others to have

consumptive children; and a fourth of all the patients admitted into the Hospital for Consumption at Brompton stated that the disease had existed in one or other of their parents.<sup>1</sup> Scrofula, which is another disease closely allied to consumption, is hereditary also; and hip disease, disease of the spine, abscesses, and enlarged glands in any members of a family, point to risks for the offspring which should not be forgotten, how much soever mental endowments, personal beauty, or the charms of disposition may be considered, and sometimes reasonably enough, to outweigh them. The same liability exists with reference to epilepsy, insanity, and the whole class of affections of the nervous system. Parents inquire, with no misplaced solicitude, what is her fortune, or what are the pecuniary resources of him to whom they are asked to entrust their son's or daughter's future. Believe me, the question—what is the health of his family, or of hers? is consumption hereditary, or scrofula, or epilepsy, or insanity?—is of far greater moment, and touches much more nearly the future happiness of those we love.

These two points regard the future parents themselves; but there are other conditions on which the health of children to a great degree depends; and of these the two most important are the *dwelling* they inhabit, and the *food* they eat.

I do not refer here to the dwellings of the poor, situated in unhealthy localities, where fresh air does not enter, where the rays of the sun do not penetrate, with defective drainage and imperfect water-supply; but I speak of the nurseries of well-to-do people. 'This will do for our bedroom, and that will make a nice spare room, and that will do for the children,' is what one often hears. Had you rare plants which cost much money to obtain, which needed sunlight, warmth, and air, would you not consider anxiously the position of your conservatory, and take much pains to insure that nothing should be wanting that could help their development, so that you might feast your eyes upon their beauty, or delight yourselves with their fragrance? And yet a room at the top of the house, one of the attics perhaps, is too often destined for the little one and its nurse; or if there are two or three children, one small room is set apart for the day nursery, and a second, probably with a different aspect, for a sleeping room, and so small that it does not furnish the needed five hundred cubic feet of air for each. And as a consequence, the children are ailing, any predisposition in them to hereditary disease is fostered, they have no strength to battle against any acute illness that may befall them, and yet surprise is felt that the doctor is never out of the house.<sup>2</sup>

It is needless to dwell on the hand-feeding of infants as one of the great causes of mortality in infancy, and of sickness in later life. The statistics of Foundling Hospitals bear sad testimony to the fact of its dangers, and the researches of physicians show that a peculiar form of disease is produced by it, attended by symptoms, and giving rise to appearances after death, peculiar to the form of slow starvation from which the infant has perished. I will add, because it is not generally known, one fresh illustration of the influence of artificial feeding in aggravating the mortality of infants. In Berlin the certificates of death of all infants under the age of one year, are required to state whether the little one had been brought up at the breast, or on some kind or other of artificial food. Of ten thousand children dying under the age of one year, one-fourth had been brought up at the breast, three-fourths by hand.<sup>3</sup>

It is, as I said in the preface, no part of my plan to enter on any details with reference to the management of children in health. It may, therefore, suffice to have pointed out the four great causes of preventible disease among the wealthier classes of society; namely, the intermarriage of near relatives, the transmission of constitutional taint, the insanitary condition of the dwelling, and the injudicious selection of the food of the infant.

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<sup>1</sup> This is the proportion stated in Quain's *Dictionary of Medicine*, to which the writer, Dr. Theodore Williams, adds that of 1,000 cases in the upper classes 12 per cent. showed direct hereditary predisposition, and 48 per cent. family predisposition.

<sup>2</sup> Many useful suggestions will be found in Mrs. Gladstone's little tract, *Healthy Nurseries and Bedrooms*, published as one of the Health Exhibition Handbooks.

<sup>3</sup> The actual numbers are 2,628 and 7,646. See *Generalbericht ueber das Medizinal-und Sanitätswesen der Stadt Berlin im Jahre 1881*. 8vo. Berlin 1883, p. 19.



## **CHAPTER II.**

### **THE GENERAL SIGNS OF DISEASE IN INFANCY AND CHILDHOOD**

The signs of disease at all ages may be referred to one or other of three great classes: disorder of function, alteration of temperature, complaint of pain.

In the infant it is the last of these which very often calls attention to the illness from which it is suffering. Cries are the only language which a young baby has to express its distress; as smiles and laughter and merry antics tell without a word its gladness. The baby must be ill, is all that its cries tell one person; another, who has seen much of sick children, will gather from them more, and will be able to judge whether its suffering is in the head, or chest, or stomach. The cries of a baby with stomach-ache are long and loud and passionate; it sheds a profusion of tears; now stops for a moment, and then begins again, drawing up its legs to its stomach; and as the pain passes off, stretches them out again, and with many little sobs passes off into a quiet sleep. If it has inflammation of the chest it does not cry aloud, it sheds no tears, but every few minutes, especially after drawing a deeper breath than before, or after each short hacking cough, it gives a little cry, which it checks apparently before it is half finished; and this, either because it has no breath to waste in cries, or because the effort makes its breathing more painful. If disease is going on in the head, the child utters sharp piercing shrieks, and then between whiles a low moan or wail, or perhaps no sound at all, but lies quiet, apparently dozing, till pain wakes it up again.

It is not, however, by the cry alone, or by any one sign of disease, that it is possible to judge either of its nature or of its degree, but the mention of this serves merely as an illustration, which anyone can understand, of the different meanings that even a baby's cry will convey to different persons.

When a child is taken ill, be the disease from which it is about to suffer what it may, there is at once a change from its condition when in health, such as soon attracts the attention even of the least observant. The child loses its appetite, is fretful and soon tired, and either very sleepy or very restless, while most likely it is thirsty, and its skin hotter than natural. In many instances, too, it feels sick or actually vomits, while its bowels are either much purged or very bound. If old enough to talk, it generally complains of feeling ill, or says that it has pain in some part or other, though it is by no means certain that a little child has described rightly the seat of its pain; for it very often says that its head aches or that its stomach aches, just because it has heard people when ill complain of pain in the head or in the stomach. Some of these signs of illness are, of course, absent in the infant, who can describe its feelings even by signs imperfectly; but the baby loses its merry laugh and its cheerful look; it ceases to watch its mother's or its nurse's eye as it was used to do, though it clings to her more closely than ever, and will not be out of her arms even for a moment; and if at length rocked to sleep in her lap, will yet wake up and cry immediately on being placed in its cot again.

Symptoms such as these are sure to awaken the mother's attention to her child, and the child's welfare and the parent's happiness alike depend, in many instances, on the way in which she sets about to answer the question, 'What is the matter?'

Some mothers send at once to the doctor whenever they see or fancy that anything ails their child. But this way of getting rid of responsibility is not always possible, nor, indeed, on moral grounds, is it always desirable, for the mother who delegates each unpleasant duty to another, whether nurse, governess, or doctor, in order to save herself trouble or anxiety, performs but half a mother's part, and can expect but half a mother's recompense of love.

Whenever a child is unwell, a mother may do much to ascertain what is the matter, and may by the exercise of a little patience and common sense save herself much needless heart-ache, and her child much suffering.

The first point to ascertain is the presence or absence of fever; that is to say, whether, and how much, the temperature of the body is higher than natural. If the temperature is not higher than natural, it may be taken as almost certain that the child neither has any inflammatory affection of the chest, nor is about to suffer from any of the eruptive fevers. The temperature, however, cannot be judged of merely by the sensation conveyed to the hand, but must be ascertained by means of the thermometer.<sup>4</sup> In the case of the grown person the thermometer is placed either under the tongue, the lips being closed over it, or in the armpit, and is kept there five or six minutes. In young children, however, neither of these is practicable, and I prefer to place the instrument in the groin, and crossing one leg over the other, to maintain the thermometer there for the requisite five minutes. The temperature of the body in health is about 98.5° Fahr. in the grown person, and very slightly higher in childhood; but any heat above 99.5° may be regarded as evidence that something is wrong, and the persistence for more than twenty-four hours of a temperature of 101° and upwards, may be taken as almost conclusive proof of the existence of some serious inflammation, or of the onset of one of the eruptive fevers.

At the same time it is well to bear in mind that temporary causes, such as especially the disorders produced by over-fatigue, or by an over-hearty or indigestible meal, may suddenly raise the temperature as high as 102°, or higher, but the needed repose or the action of a purgative may be followed in a few hours by an almost equally sudden decline of the heat to the natural standard.

It is well to learn to count the pulse and the frequency of the breathing; but to do the former accurately, requires practice such as is hardly gained except by hospital training; and indeed, with few exceptions, the value of the information furnished by the pulse is less in the child than in the adult. The reasons for this are obvious, since the rapidity of the circulation varies under the slightest causes, and the very constraint of holding the sick child's hand makes it struggle, and its efforts raise the frequency of the heart-beats by ten or twenty in the minute. The place at which to seek the beat of the pulse is at the wrist, just inside and below the protuberance of the wrist-bone; but if the child is very fat it is often difficult to detect it. When detected it is not easy to count it in early infancy, for during the first year of life the heart beats between 120 and 130 in the minute, diminishing between that age and five years to 100, and gradually sinking to 90 at twelve years old. In proportion, moreover, to the tender age of the child, is the rapidity of its circulation apt to vary under the influence of slight causes, while both its frequency and that of the breathing are about a third less during sleep than in the waking state.

The frequency of the breathing is less difficult to ascertain, while at the same time it furnishes more reliable information than the pulse. This is best tested when the child is asleep, remembering always that the breathing is then slower than in the waking state. The open hand, well warmed, should be laid flat and gently over the child's night-dress on the lower part of the chest and the pit of the stomach. Each heaving of the chest, which marks a fresh breath being taken, may be counted, and the information thus obtained is very valuable. Up to the age of two years the child breathes from 30 to 40 times in a minute, and this frequency gradually declines to from 25 to 30 till the age of twelve, and then settles down to from 20 to 25 as in the grown person. You would thus know that a sleeping infant who was breathing more than 30 times, or a child of five who breathes more than 25 times, has some ailment in its chest, and that the doctor should be sent for in order to ascertain its exact nature.

It would answer no good purpose to give a description of the information to be obtained by listening to the chest. To learn from this, needs the well-trained ear; and harm, not good, comes from the half-knowledge which serves but to lead astray.

A child may be very suffering, seem very ill, and its suffering and illness may depend on pain in the stomach owing to indigestion, constipation, or even to an accidental chill. After early infancy it is

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<sup>4</sup> The thermometer used for this purpose, called a *clinical* thermometer, may be bought for about twelve shillings, of any chemist or instrument-maker, and its mode of employment can be learned in five minutes. No mother should be without it.



not difficult to make out the seat of the child's suffering: the warm hand placed gently on its stomach will soon ascertain whether it is tense or tender, whether the tenderness is confined to one particular spot, or whether it is more acute at one spot than at another; and, lastly, whether, as is the case when pain is produced by wind in the intestines, the pain and tenderness are both relieved by gentle rubbing.

In the young infant the character of the cry will, as I have already said, give some clue to the seat of its pain, while, if you lay it down in its cot or in its nurse's arms in order to examine its stomach, it will often resist and begin to cry. Its stomach then becomes perfectly tense, and you cannot tell whether pressure on it causes pain or whether the cries are not altogether the consequence of fretfulness and fear. It is therefore the best plan to pass your hand beneath the child's clothes and to examine its stomach without altering its posture, while at the same time the nurse in whose arms it is talks to it to distract its attention, or holds it opposite the window, or opposite a bright light, which seldom fails to amuse an infant. If there is no tenderness of the stomach the child will not cry on pressure; or if during your examination the presence of wind in the intestines should occasion pain, gentle friction, instead of increasing suffering, will give relief.

The one thing which still remains to do, especially in the case of children in whom teething is not over, is to examine the mouth and ascertain the state of the gums, since some ailments are caused and others are aggravated by teething. A wise mother or an intelligent nurse will teach the child when well the little trick of putting out its tongue and opening its mouth to show its teeth when told to do so; and though it may sometimes indulge rather out of place in these performances when wished to behave especially prettily before strangers, yet when older it will quickly learn the proprieties of behaviour, and in the meanwhile you profit much by the lesson when illness really comes.

Sometimes, however, infants who when well will open their mouth and allow their gums to be felt without difficulty, refuse to do so when ill; and it is always desirable that the mother or nurse whose duty it is to tend the sick child constantly, should not frighten it, or lose its confidence, by doing forcibly that which the doctor who comes occasionally may yet be quite right in doing. You will, however, generally get a good view of the mouth and throat in young infants by gently touching the lips with your finger: the child opens its mouth instinctively, and then you can run your finger quickly over its tongue, and drawing it slightly forward perfectly see the condition of the throat, feel the gums as you withdraw your finger, and notice the appearance of the tongue. Sometimes it is important to ascertain whether a tooth which was near coming through has actually pierced the gum, and yet the child's fretfulness renders it almost impossible to induce it to open its mouth. If now, while the nurse holds the child in her arms, you go behind her, you can, unseen and unawares, introduce your finger into its mouth and ascertain all you wish to know before the little one has recovered from its surprise.

I have but little to say here about the general signs of brain disease in infancy and childhood, because they will need minute notice afterwards. All that I would at present observe is, that you must not at once conclude that a child's head is seriously affected, because it is heavy and fretful and passionate, and refuses to be amused. The head, as we know by our own experience, suffers by sympathy in the course of almost every ailment, certainly of every acute ailment, at all ages. If the babe is not sick; if its bowels can be acted on by ordinary means; if, though drowsy, it can be roused without difficulty; if, though it may prefer a darkened room, it does not shrink from the light when admitted gradually; if it has no slight twitchings of its fingers or of its wrists; if the head, though hot, is not hotter than the rest of the body; if the large vessels of the neck, or the open part of the head, or fontanelle as it is termed, in an infant in whom the head is not yet closed, are not beating violently; and, above all, *if when it cries it sheds tears*, you may quiet your mind on the score of the child's brain, at any rate until the doctor's visit, and may turn a deaf ear to the nurse or the friend who assures you that the child is about to have convulsions or to be attacked by inflammation of the brain.

### **CHAPTER III.**

## **THE GENERAL MANAGEMENT OF DISEASE IN INFANCY AND CHILDHOOD**

The management of the child when ill is difficult or easy in exact proportion to whether it has been ill or well managed when in health. The mother who lives but little with her children, who contents herself with a daily visit to the nursery, and who then scarcely sees her little ones until they are brought into the drawing-room in the evening in full dress, to be petted and admired and fondled by the visitors, cannot expect to take her place by the child's bed in its sickness, to soothe its pain, and to expend upon it all the pent-up tenderness which, in spite of the calls of business or of pleasure, still dwells within her heart. She must be content to see the infant turn from her to the nurse with whose face it has all its life been familiar; or to hear the little one tell her to go away, for her presence is associated with none of those 'familiar acts, made beautiful by love,' which win the young heart: the mother is but a stranger who brings no help, who relieves no distress. Happy such a mother if she has found a conscientious and intelligent nurse to whom she can delegate her office; but she must remember that with the child, love follows in the steps of daily, hourly kindnesses, that a mother's part must be played in health if it is to be undertaken in sickness, that it cannot be laid down and taken up again at pleasure.

There is another mother who cannot nurse her child to any good purpose, she who when it was well spoilt it from excess of love, who has yielded to each wayward wish, and has allowed it to become the petty tyrant of the household. The child is ill, it is languid, feverish, and in pain; no position is quite easy to it, no food pleasant to it, bed is irksome, medicine is nasty. It knows only that it suffers, it has been accustomed to have its will obeyed in everything, and cannot understand that its suffering is not at once taken away. It insists on getting up and on being dressed, or on lying in its mother's or nurse's lap, where the warmth of another person's body does but aggravate its fever; it screams with passion at the approach of the doctor, it will not allow itself to be examined, it will take no medicine; the doctor is powerless, the mother heart-broken. Sickness is not the time to exercise authority which has not been put in force before; and, not once but many times, I have watched, a sad spectator, the death of children from an illness not necessarily fatal, but rendered so because it was impossible to learn the progress of disease, impossible to administer the necessary remedies.

### **What a child has been made when well, such it will be when sick**

One more point I must insist on before going into details, and that is as to the necessity of perfect truthfulness in dealing with sick children. The foolish device of telling a child when ill, that the doctor who has been sent for is its uncle or its cousin, is the outcome of the still more foolish falsehood of threatening the child with the doctor's visit if it does not do this or that. No endeavour should be spared by nurse or parent, or by the doctor himself, to render his visit popular in the nursery. Three-fourths of the difficulties which attend the administration of medicine are commonly the result of previous bad management of the child, of foolish over-indulgence, or of still more foolish want of truthfulness. It may answer once to tell a child that medicine is nice when really it is nasty, but the trick will scarcely succeed a second time, and the one success will increase your difficulties ever after. If medicine is absolutely necessary, and the child is too young to understand reason, it must be given by force, very firmly but very kindly, and the grief it occasions will be forgotten in an hour or two. If he is old enough, tell him that the medicine is ordered to do him good, and firmness combined with gentleness will usually succeed in inducing him to take it. The advantage of perfect truthfulness extends to every incident in the illness of children, even to the not saying, 'Oh, you will soon be well,'

if it is not likely so to be. If children find you never deceive them, how implicitly they will *trust* you, what an infinity of trouble is saved, and how much rest of mind is secured to the poor little sufferer!

A little boy three years old was ordered to be cupped. The cupper, a kind old man, said to encourage him, 'Oh, dear little boy, it's nothing.' The child turned to his mother, saying, 'Mummy, is that true?' His mother said it was not, but that for her sake she hoped he would try to bear it well. And the operation was performed without a cry or a sound.

I have spoken of the moral conditions implied in the successful management of sick children. There are certain physical conditions no less important. The sick child should not be left in the common nursery, of which he would taint the air, while he would be disturbed by its other little inmates. He must (and of course I am speaking not of some slight ailment, but of a more serious indisposition) be in a room by himself, which should be kept quiet and shaded, and at a temperature which should not be allowed to fall below 60° if the chest is in any way affected, nor to exceed 55° in other cases, and this temperature should always be measured, not by guess, but by the thermometer hung close to the child's bed. The room is to be shaded, not by curtains round the bed—for, save in special circumstances, curtains should be banished from the nursery—nor by closed shutters which exclude both light and air, but by letting down the blinds, so as to have a sort of twilight in the room, and by shading any light which at night may be burned in the apartment; while whether by day or night the child should be so placed that his face shall be turned from the light, not directed towards it. The room should be kept quiet, and this requires not only general quiet in the house, but quiet in the movements of all persons in the room; speaking, not in a whisper, but in a low and gentle voice; walking carefully, not in a silk dress nor in creaky shoes, but not on tiptoe, for there is a fussy sham quietness which disturbs the sick far more than the loudest noise.

Little precautions, so trifling that few think of noticing them, have much to do with the quiet of the sick-room, and consequently with the patient's comfort. A rattling window will keep a child awake for hours, or the creaking handle of the door rouse it up again each time anyone enters the room; and to put a wedge in the window, or to tie back the handle, and so quietly open and close the door, may do more than medicine towards promoting the child's recovery. There can, however, be no abiding quiet without a well-ordered room, and the old proverb carried out, 'A place for everything, and everything in its place.' A table covered with a cloth so that things may be taken up and put down noiselessly, and set apart for the medicine, the drink, the nourishment, cups, glasses, spoons, or whatever else the patient is in frequent need of; with a *wooden* bowl and water for rinsing cups and glasses in, and a cloth or two for wiping them, will save much trouble and noise, and the loud whispers of the attendants to each other, 'Where is the sugar? where is the arrowroot? where did you put down the medicine?' of which we hear so much in the sick-room, so much especially in the sick-room of the child, who is unable to tell how extremely all this disturbs him.

One more caution still remains for me to give. Do not talk to the doctor in the child's room, do not relate bad symptoms, do not express your fears, nor ask the doctor his opinion in the child's hearing. The child often understands much more than you would imagine, misunderstands still more; and over and over again I have known the thoughtless utterance of the mother, nurse, or doctor depress a child's spirits and seriously retard his recovery.

It is consoling to bear in mind that how grave soever a child's illness may be, the power of repair is greater in early life than in adult age, that with few exceptions the probability of recovery is greater in the child than it would be from the same disease in the grown person. This too is due not simply to the activity of the reparative powers in early life, but also in great measure to the mental and moral characteristics of childhood.

To make the sick child happy, in order that he may get well, is the unwritten lesson which they who have best learnt, know best how to nurse sick children. It may seem strange, that from so high a purpose I should at once come down to so commonplace a detail as to insist on the importance, even on this account, of keeping the sick child in bed.

At the onset of every illness of which the nature is not obvious, during the course of any illness in which the chest is affected, or in which the temperature is higher than natural, bed is the best and happiest place for the child. In it repose is most complete, far more complete than after early babyhood it can be in the nurse's or mother's lap, and free from the great objection of the increased heat from being in contact with another person's body. Nothing is more painful than to witness the little child, sick and feverish, with heavy eyes, and aching head, up and dressed, trying to amuse itself with its customary toys; then, with 'Please nurse me,' begging to be taken in the lap, then getting down again; fretful, and sad, and passionate by turns; dragging about its misery, wearing out its little strength, in deference to the prejudice that bed is so weakening.

### **The bed does not weaken, but the disease does which renders bed necessary**

A child frets sometimes at the commencement of an illness if kept in its own little cot. But put it in its nurse's or mother's big bed, set a tea tray with some new toys upon it before the child, and a pillow behind it, so that when tired with play it may lie back and go to sleep, and you will have husbanded its strength and saved your own, have halved your anxiety and doubled the child's happiness.

Young infants, indeed, when ill often refuse to be put out of the arms, but over and over again I have found the experiment succeed of laying the baby on a bed, the nurse or mother lying down by its side, and soothing it to sleep. Were there no other drawback, it is a waste of power to have two persons employed in nursing a sick child; one to keep it in her lap, and the other to wait upon her.

It is important in all serious illnesses of children, as well as of a grown person, that the bed should be so placed that the attendant can pass on either side, and can from either side reach the patient to do whatever is necessary. Most cots for young children have a rail round them to prevent the child falling out of bed when asleep or at play; but nothing can be more inconvenient than the fixed rail over which the attendant has to bend in order to give the child food or medicine, or for any other purpose. When I founded the Children's Hospital in Ormond Street, I introduced children's cots (the idea of which I took from those in the Children's Hospital at Frankfort) the sides of which let down when needed, while on the top of the rail, or dependent from it, a board is placed surrounded by a raised beading on which the toys, the food, or drink may be put with great convenience. These bedsteads, with probably some improved arrangement for letting down the sides, may be seen now in most children's hospitals, but I have been surprised to observe how seldom they are employed in private nurseries, and how comparatively few bedstead-makers are acquainted with them. The result would probably have been very different had a patent been taken out for them, and had they been largely advertised as 'Dr. West's improved children's bedsteads'! The uninclosed spring mattress, and the wedge-shaped horsehair cushion, both of which I introduced in Ormond Street, are also very valuable. The latter slightly raises the head and shoulders, and renders any other than a thin horsehair pillow for the head to rest on unnecessary.

A few more hints about the bed may not be out of place. First of all, after early infancy is over, at latest after nine months, except for some very special reason the napkin should be done away with. It heats the child, chafes it, and makes it sore; it conceals the inattention of the nurse, and at the same time renders it less easy to keep the little one absolutely clean than if a folded napkin is placed under the hips, whence it can be at once removed when soiled. In all serious illness a piece of macintosh should be placed under the sheet, as is done in the lying-in room, and a draw-sheet, as it is termed, over it. The draw-sheet is, as its name implies, a folded sheet, laid under the hips, and withdrawn in part when needed so as to prevent the child ever lying on linen that is wet or soiled. It can be drawn away from under the child, and a portion still clean and dry brought under it, while the soiled part is rolled together and wrapped up in macintosh at one side of the bed until a new draw sheet is substituted, which is easily done by tacking a fresh sheet to that which is about to be withdrawn, when

the fresh one is brought under the child's body as that which is soiled is removed. The greatest care should always be taken that the under sheet is perfectly free from ruck or wrinkle; in long illnesses the skin becomes chafed and bed-sores may be produced by neglect of this simple precaution. The complaint that a child throws off the bed-clothes is easily remedied by a couple of bits of tape tied on either side loosely from the sheet or blanket to the sides of the cot.

When children are compelled to remain long in bed, great care is needed to prevent the skin from being chafed, which is the first step that leads to the occurrence of bed-sores. Careful washing with soap and water daily of the whole body, not only of those parts which may be soiled by the urine or the evacuations; the washing afterwards with pure tepid water; careful drying, and abundant powdering with starch powder, will do much to prevent the accident. If, in spite of this care, the skin seems anywhere to be red or chafed, it should be sponged over with brandy or with sweet spirits of nitre before powdering. Real bed-sores must be seen and treated by the doctor.

The warm bath is a great source of comfort to the sick child, and in all cases of feverishness, of influenza, or threatening bronchitis, it should not be omitted before the child is put to bed, or must be given towards evening if the child has not been up during the day. The bath may be either warm or hot, the temperature of the former being 90° to 92°, that of the latter 95° to 96°. The temperature should always be ascertained by the thermometer, and the *warm* bath only should be employed, except when the *hot* bath is ordered by the doctor. The warm bath relieves feverishness and quiets the system, and promotes gentle perspiration; the hot bath is given when the eruption of scarlet fever or of measles fails to come out properly, or in some cases of convulsions at the same time that cold is applied to the head, or, in some forms of dropsy when it is of importance to excite the action of the skin as much as possible. It is not desirable that a child should remain less than five or more than ten minutes in the bath, and attention must be paid by the addition of warm water to maintain the bath at the same temperature during the whole time of the child's immersion.

Now and then infants and very young children when ill seem frightened at the bath, and then instead of being soothed and relieved by it they are only excited and distressed. If the bath is brought into the room, prepared in the child's sight, and he is then taken out of bed, undressed, and put into the water which he sees steaming before him, he very often becomes greatly alarmed, struggles violently, cries passionately, and does not become quiet again till he has sobbed himself to sleep. All this time, however, he has been exerting his inflamed lungs to the utmost, and will probably have thereby done himself ten times more harm than the bath has done good. Very different would it have been if the bath had been got ready out of the child's sight; if when brought to the bedside it had been covered with a blanket so as to hide the steam; if the child had been laid upon the blanket, and gently let down into the water, and this even without undressing him if he were very fearful; and then if you wish to make a baby quite happy in the water, put in a couple of bungs or corks with feathers stuck in them, for the baby to play with. Managed thus, I have often seen the much-dreaded bath become a real delight to the little one, and have found that if tears were shed at all, it was at being taken out of the water, not at being placed in it.

In a great variety of conditions, poultices are of use. They are needed in the case of abscesses which it is wished to bring to a head; they are sometimes applied over wounds which are in an unhealthy condition, or from which it is desired to keep up a discharge. They soothe the pain of stomach-ache from any cause, and are of most essential service when constantly applied in many forms of chest inflammation. And yet not one mother or nurse in ten knows how to make a poultice<sup>5</sup>.

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<sup>5</sup> I add in this note a few simple directions for making poultices, though, as I have stated in my preface, it is no part of my purpose to enter into all the details, important though they are, of a sick nurse's duties. For a linseed meal poultice, see that the water is *boiling*, not merely hot; warm the basin, put the water in *first*; sprinkle the meal on it, stirring the whole time, till it becomes of the uniform consistency of porridge, then spread it about half an inch thick over the linen, or whatever it is spread on, and turn up the edges for an inch all round to prevent the poultice crumbling and soiling the night-dress; and then having smeared the surface with a little oil, test its warmth by applying it to your cheek before putting it on the patient. A broad bandage of some sort or a soft towel must then

When applied over a wound they should not be covered with oiled silk or any impermeable material, since the edges of the wound and the adjacent skin are apt thereby to be rendered irritable and to become covered with little itching pimples. When used to relieve pain in the stomach, or as a warm application in cases of inflammation of the chest, they should be covered with some impermeable material, and will then not require to be changed oftener than every six hours. After poultices have been applied over the chest or stomach for two or three days the skin is apt to become tender, and then it is well to substitute for them what may be termed a dry poultice, which is nothing else than a layer of dry cotton wool an inch or an inch and a half thick, tacked inside a piece of oiled silk.

A handy substitute for a poultice may be made of bran stitched in a flannel bag, heated by pouring boiling water on it, then squeezed as dry as possible and laid over the painful part. This is especially useful to relieve the stomach-ache of infants and young children.

Spongio-piline is a useful substitute for a poultice, especially when it is desirable to employ a soothing or stimulating liniment to the surface. It retains heat very well when wrung out of hot water, and any liniment sprinkled on it is brought into contact with the skin much better than if diffused through a poultice. I may just add that its edges should be sloped inwards, in order to prevent the moisture from it oozing out and wetting the child's night-dress.

When I was young, leeches and bleeding were frequently, no doubt too frequently, employed. We have now, however, gone too much to the other extreme, for cases are met with from time to time of congestion of the brain, or of inflammation of the chest or of the bowels, in which leeches bring greater and more speedy relief than any other remedy. In applying leeches it is always desirable that they should be put on where they will be out of the child's sight if possible, and where it will be comparatively easy to stop the bleeding. Hence, in many instances of inflammation of the bowels, it is better to apply the leeches at the edge of the lower bowel, the anus as it is technically termed, than on the front of the stomach, though, of course, this will not always answer the purpose. Leeches to the chest may usually be put on just under the shoulder-blade; and leeches to the head on one or other side behind the ear, where they will be out of the way of any large vein, and where the pressure of the finger will easily stop the bleeding. Steady pressure with the finger will, even where there is no bone to press against, usually effect this; and then a little pad of lint put over the bite, and one or two layers over that, and all fastened on with strips of adhesive plaster, will prevent any renewal of the bleeding. In the few cases where it is not arrested by these means, the application of a little of the solution of muriate of iron will hardly fail of effect.

There is one more point to which I will refer before passing lastly to the question of how to manage in the administration of medicine; and this is the best way of applying cold to the head. This is often ordered, but very seldom efficiently done. Cold is best applied by means of a couple of bladders half-filled with pounded ice, and wrapped in two large napkins; one of them should be placed under the child's head, the corners of the napkin being pinned to the pillow-case to prevent its being disturbed, while the other is allowed to rest upon the head, but with the corners of the napkin again pinned to the pillow so as to take off the greater part of its weight. Thus arranged, the cold application will neither get displaced by the child's movements, nor will the child itself be wetted, as it too commonly is when wet cloths are employed for this purpose, nor irritated by their perpetual removal and renewal.

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be put round the body to keep the poultice in its place, and secured with safety pins. Pure mustard poultices are never used in children, on account of the pain they occasion, and the too great irritation which they would cause of the delicate skin of children. A mixture of one part of mustard to two of linseed meal is, however, often of much use in the chest affections of children. Bread poultices are less generally useful than those of linseed meal. They do not retain the heat nearly so well as those of linseed meal, and are chiefly used in cuts, wounds, or small abscesses; and also because they are so easily made. A slice of stale bread without the crust is put on a plate, boiling water is poured over it, and drained off; it is then placed on a piece of muslin, pressed between two plates to squeeze out the remaining water, and its surface is greased before it is applied with a little oil or lard. I would refer for details about how to make poultices, and for many other things well worth the knowing, to Miss Wood's *Handbook of Nursing*, London, 12mo, 1883.

In London and in large towns there are various contrivances of vulcanised rubber, which are, of course, far preferable to the bladders, but it is not everyone who lives in London, or who can command the resources furnished by a large city.

The difficulties in the administration of medicine to children are in great part the fault, either of the doctor in giving needlessly unpleasant medicine, or of the parents or nurse who either have failed to teach the child obedience, or who are deficient in that tact by which hundreds of small troubles are evaded.

As far as the doctor is concerned, all medicines should be prescribed by him in small quantities, and as free from taste and smell as possible: or where that cannot be, the unpleasant flavour should be covered by syrup, or liquorice, or treacle.

Bulky powders should be avoided, and the child who has learned to take rhubarb and magnesia, or Gregory's powder without resistance, certainly does credit to his training.

Aperients are the medicines most frequently needed in the minor ailments of children, and a wise mother will not undertake herself the management of serious diseases. Of all aperients castor oil is perhaps the safest, the least irritating, the most generally applicable; it acts on the bowels and does nothing more. The idea that it tends specially to produce constipation afterwards is unfounded; it does not do so more than other aperients. All aperients quicken for a time what is termed the peristaltic action of the bowels; that is to say, their constant movement in a direction from the stomach to the lower bowel, which, as well as a contraction on themselves, is constantly going on in every living animal, and continues even for some time after death. The bowels stimulated to greater activity of movement by the aperient, become for a time more sluggish afterwards; they rest for a while, just as after a long walk the muscles of the leg are weary and need repose.

There are indeed aperients which do more than this, as grey powder and calomel act upon the liver, and so by promoting an increased flow of bile cause a more permanent excitement of the bowels, and consequently their more prolonged activity; or as Epsom salts or citrate of magnesia, which by their action on the blood cause a greater secretion or pouring out of fluid from the coats of the intestines, and in this way have in addition to their purgative property a special influence in abating various feverish conditions.

Castor oil, senna, jalap, jalapine, and scammony are simple aperients. They empty the bowels and nothing more, and in cases of simple constipation, or where a child is ill either from eating too much or from taking indigestible food, are the best purgatives that can be given. A dose of castor oil, often one of the great griefs of the nursery, may generally be given without the least difficulty if previously shaken up in a bottle with a wine-glassful of hot milk sweetened and flavoured with a piece of cinnamon boiled in it, by which all taste of the oil is effectually concealed.

The domestic remedy, senna tea with prunes which render it palatable, confection of senna, syrup of senna, and the sweet essence of senna are generally very readily taken by children, but all have the disadvantage of being liable to gripe. The German liquorice powder, as it is called, which is composed of powdered senna, liquorice powder, fennel, and a little sulphur with white sugar, is freer from this drawback than any other preparation, and when mixed with a little water is not generally objected to. It is important, as senna is often adulterated and loses its properties by exposure to the air, that this powder should always be obtained from a very good chemist, purchased in small quantities, and always kept in a glass-stoppered bottle.

Jalap, in the form in which it is usually sold—as compound jalap powder—is in general readily taken; it acts speedily, but often with pain, and is not a desirable domestic remedy. Jalapine, which is a sort of extract of jalap, is much less apt to gripe, and owing to its small bulk is much handier. It may be given in doses of from two to five grains to children from two years old and upwards.

Scammony is another powerful simple aperient, apt to be violent in its action, and therefore not to be given except when the bowels have long been confined, or when it is given to expel worms. The



compound scammony powder is the form in which it is usually given, and of that five grains would be a dose for a child two years old.

Scammony, however, is a costly drug, and therefore the caution given with reference to German liquorice powder applies here also.

There is a preparation of scammony, the so-called scammony mixture, which consists of the resin or extract of scammony dissolved in milk, which is extremely useful when the stomach is irritable, or there is much difficulty in inducing the child to take medicine. It is almost tasteless, and a tablespoonful, which would be a proper dose for a child of five years old, can be given without being detected.

Much of the difficulty experienced in giving powders arises from their being mixed with the arrowroot or jam in which they are administered. A very small quantity of arrowroot, bread and milk, or jam, should be put in a tea-spoon; the powder then laid upon it, and covered over with the arrowroot or jelly, so, in short, as to make a kind of sandwich, with the powder, which would thus be untasted, in the middle.

Aloes is a purgative which acts chiefly on the large bowel and to some degree also on the liver, and is of most use in the habitual constipation of weakly children. In spite of its bitter taste the powder is seldom objected to if given between two layers of coarse brown sugar, while with most children the addition of a teaspoonful of treacle will induce them to take very readily that useful medicine, the compound decoction of aloes.

Both rhubarb, aloes, and indeed other remedies which are nauseous if given as a liquid and are bulky in the form of powder, may very readily be given in extract in the form of very tiny pills. Thus I have constantly ordered the extract of rhubarb, which is nearly twice as strong as the powder, made up into pills scarcely bigger than what children call 'hundreds and thousands' and silver-coated. Ten or a dozen of these go down in a teaspoonful of jelly unknown, and with no expenditure of temper or tears.

The citrate of magnesia, or Dinneford's Magnesia, taken effervescing with lemon juice, or when the effervescence has passed off, or the French Limonade Purgative, are almost always very readily taken, and are often very useful in the little febrile attacks, or in the slight feverish rashes to which children are liable in the spring and autumn.

Mercurials should have no place among domestic remedies. I do not mean that the doctor need be called in to prescribe each time that they are given, but that the mother should learn from him distinctly with reference to each individual child the circumstances which justify their employment. They stimulate the liver, as well as produce thereby action of the bowels, but they have, especially if often employed, a far-reaching influence on the constitution, and that undoubtedly of a depressing kind: an influence more than made up for when really needed by their other qualities, and especially by their power in doing away with the results of many forms of chronic inflammation. They are 'edged tools,' however, and we know the proverb about those who play with them.<sup>6</sup>

Grey powder, blue pill, and calomel are the three forms in one or other of which mercurials are commonly given. Of the three, grey powder is the mildest; but it has the inconvenience of not infrequently causing nausea, or actual sickness. This objection does not apply to blue pill, which can be given either in the tiny pills of which I have already spoken, or else broken down, and given in a little jam, or in a teaspoonful of syrup or treacle. On the whole I prefer calomel in small doses. It has the great advantage of tastelessness, small bulk, and of never causing sickness. Half a grain of calomel may be regarded as equivalent to two grains of grey powder or blue pill.

I shall speak afterwards of other medicines, which may in various circumstances be given, to act upon the bowels; but the above include all that are at all fit for common use in the nursery.

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<sup>6</sup> I am not ignorant of the doubts which have been raised with reference to the special influence of mercurial remedies on the liver, but prefer in a book written for non-medical readers to leave the popular opinion unquestioned.

Before leaving this subject I will add a word or two about the use of suppositories and lavements in infancy and childhood. A piece of paper rolled up into a conical form and greased, or a bit of soap, is not infrequently introduced by nurses just within the bowel, as a means of overcoming constipation in infants. The irritation of the muscle at its orifice (the sphincter, as it is termed) excites the bowels to action, and does away with the necessity for giving an aperient. The drawback from this, as well as from the use of the lavement, is that if frequently employed they become habitually necessary, and the bowels will then never act without their customary stimulus. The lavement, too, has the additional disadvantage that while the lower part of the bowel is in proportion more capacious in infancy and childhood than in the adult, this peculiarity becomes exaggerated by the constant distension of the intestine, and a larger and still larger quantity of fluid needs to be thrown up in order to produce the requisite action of the bowels.

Opiates and other soothing medicines should never be given except when prescribed by the doctor. Thirty-two deaths in England under five years of age in 1882 represent but a very small part of the evil wrought by the overdose or injudicious use of these remedies. Above all, soothing medicines of varying strength, as syrup of poppies, or of unknown composition, as Dalby's Carminative or Winslow's Soothing Syrup, should never be employed. The only safe preparation, and this to be given only by the doctor's orders or with his approval, is the compound tincture of camphor, or paregoric elixir, as it is called, of which sixty measured drops contain a quarter of a grain of opium. Ten to fifteen measured drops of this are a sufficient dose for a child one year old, and this ought not to be repeated within twelve hours. The repetition every few hours of small doses of opiates is quite as hazardous as the giving of a single overdose; and if it does not work serious mischief by stupefying the child, it renders it impossible to judge of its real condition.

Thus much may suffice with reference to the more important remedies. Others will necessarily call for notice when the diseases come to be considered in which they may be of service.

There are two points which still remain to be noticed before I leave the introductory part of this little book.

The first of these concerns the importance of keeping written notes in the course of every case of serious illness. For want of doing this the most imperfect and conflicting accounts of what has happened are given to the doctor. No person can watch to any good purpose for four-and-twenty hours together; and no one's memory, least of all in the midst of fatigue and anxiety, can correctly retain all details concerning medicine, food, and sleep, which yet it may be of paramount importance that the doctor should be made acquainted with. I am accustomed to desire a record to be kept on a sheet of paper divided into six columns, one for food, a second for medicine, a third for sleep, a fourth for the evacuations, and a fifth for any special point which the nature of the illness renders it of special moment to observe, while the date is entered on the first column of all, indicating when food or medicine was given, or when and for how long the child slept. It is best to enter the variations of temperature on a separate paper, in order that the doctor may at a glance perceive the daily changes in this important respect. No one who has not made the experiment can tell the relief which the keeping this simple record gives to the anxiety of nursing the sick, especially when the sick one is loved most tenderly.

The other point concerns the relations of the mother or of the parents to the doctor. I have often heard it said, 'Dr. Green always attends my husband and myself, but we have Dr. White for the servants and children,' implying a lower degree of medical knowledge as required in their case, and to be acknowledged by a lower rate of remuneration.

Need I say that the assumption is a mistaken one—that as much knowledge, as large experience, are needed in the one case as in the other; while over and above, to treat children successfully, a special tact and a special fondness for children are needed? A man may be a very good doctor without those special gifts; but their possession, apart from real medical knowledge, may make a good children's nurse, but never a good children's doctor.

Another matter not to be forgotten is the confidence to be reposed in the doctor—the readiness to acquiesce in his sometimes visiting the child more frequently in the course of an illness than the symptoms may seem to you to require. Were you involved in some civil action, in which your succession to large property was involved, you would scarcely expect your solicitor to give you his opinion on all the questions at a single interview. In the same way, the doctor, even the most experienced, may need to visit his little patient several times before he can feel quite certain as to the nature of the disease that is impending, while he may not wish to alarm you by suggesting all the possibilities that are present to his mind. The child after a restless night may be asleep, and it may be most undesirable to wake him; or he may be excessively cross and unmanageable, so that it is impossible to listen to his chest; or it may be very important to ascertain whether the high temperature present in the morning has risen still higher towards night, or whether, after free action of the bowels, it has fallen a degree or two, showing that no fever is impending, but that the undue heat of the body was occasioned by the constipation. Or, again, some remedy may have been ordered, of the effect of which the doctor does not feel quite sure: he wishes to see for himself whether it is right to continue or wiser to suspend it. The wise physician, like the able general, leaves as little as may be to chance.

Nearly forty years ago, in addressing a class of medical students, I said to them:

'If you are carefully to observe all the points which I have mentioned, and to make yourselves thoroughly masters of a case, you must be lavish of your time; you must be content to turn aside from the direct course of investigation, which you would pursue uninterruptedly in the adult, in order to soothe the waywardness of the child, to quiet its fears, or even to cheat it into good humour by joining in its play; and you must be ready to do this, not the first time only, but every time that you visit the child, and must try to win its affections in order to cure its disease. If you fail in the former, you will often be foiled in your attempts at the latter. Nor is this all; you must visit your patient very often if the disease is serious in its nature and rapid in its course. New symptoms succeed each other in infancy and childhood with great rapidity; complications occur that call for some change in your treatment, or the vital powers falter suddenly when you least expect it. The issues of life and death often hang on the immediate adoption of a certain plan of treatment, or on its timely discontinuance. Do not wait, therefore, for symptoms of great urgency before you visit a child three or four times a day; but if the disease is one in which changes are likely to take place rapidly, be frequent in your visits as well as watchful in your observation.'

Each year has added to my conviction of the perfect truth of each word which I have quoted. If you believe your doctor to be a man of integrity and intelligence, be thankful for his frequent visits, which will cease as his anxiety abates. Be convinced that in the mean time they are made, not for his sake, but for yours. If you doubt his integrity, change your doctor; but do not say to him in a tone and with an emphasis which there is no mistaking, 'Well, if you think it *really* necessary to come'!

## PART II

All that has been said hitherto is only introductory to the great purpose of this book, which is to give an account of the nature, symptoms, and course of the more important diseases of infancy and childhood.

Any attempt at scientific arrangement of a popular book is useless. I prefer, therefore, to consult simply the general convenience of my readers. I think I do so best by considering first the disorders which beset the child in the first month of its existence, during what may be termed its transition from the condition of existence in the womb, to its living, breathing state as an inhabitant of this world; and next the more important ailments to which it is liable during that important time of development which ends with the completion of teething. Afterwards may be studied the diseases of the head, the chest, and the bowels; next constitutional diseases, such as consumption and scrofula; and lastly, the various fevers, as typhoid, or, as it is popularly called, remittent fever, measles, scarlatina, and small-pox; and last of all I will add a few remarks on the mental and moral characteristics of childhood, and their disorders.

### CHAPTER IV. ON THE DISORDERS AND DISEASES OF CHILDREN DURING THE FIRST MONTH AFTER BIRTH

**Still-birth.**—The infant cries almost as soon as it comes into the world. The cry is the evidence that air has entered its lungs, that the blood has now begun to take a different course from that which it followed before birth, and that the child has entered on a new existence. The child who does not cry, does not breathe; it is said to be *still-born*; its quietude means death.

After a long or a difficult labour, or after the use of instruments, the child is sometimes still-born in consequence of blood being poured out on its brain, and it is thus killed before birth by apoplexy. This, however, is not usually the case, but the child is generally still-born because some cause or other, generally the protraction of labour, interfered with the due changes of its blood within the womb, and it is born suffocated before its birth, and consequently unable to make the necessary efforts to breathe afterwards.

Drowned people are often resuscitated; the child's case is analogous to theirs; and in both the same measures have to be pursued, namely to try to establish respiration. The degree of the warmth of the child's body, the resistance of its muscles, the red tint or the white colour of its surface, the presence or absence of perceptible beating of its heart, measure the chances of success. Sometimes mere exposure to the cold air produces the necessary effect; at other times breathing is excited by dashing cold water in the child's face, by slapping it, by tickling its nostrils, or by dipping it for a few seconds in a hot bath at 100° or 102°; and then swinging it a few times backwards and forwards in the air.

Much time, however, must not be lost over these proceedings, but the child must be laid on its back, the lower part of its body well wrapped up, the chest slightly raised by a folded napkin placed under it. The two arms must then be taken firmly, raised and slowly extended on either side of the head, then brought down again and gently pressed on either side of the chest; and this movement of alternate raising and extending the arms and bringing them back again beside the chest must be repeated regularly some thirty times in the minute, thus imitating the movements of the chest in breathing. These efforts, too, must not be discontinued so long as the surface retains its warmth, and as an occasional heart-beat shows that life is not absolutely extinct; and I believe that in many instances failure is due to want of perseverance rather than to the absolute uselessness of the measure.

**Premature Birth.**—In spite of very extraordinary exceptions, it may be laid down as a rule that children born before the completion of six and a half months of pregnancy do not survive. After that date, each additional week adds greatly to the chances of the child living. There is a mistaken idea, founded on a superstition connected with the number seven, that a seven-months child is more likely to survive than one born at the eighth month. But this notion is as destitute of support in fact as it is opposed to common sense, and the nearer any woman has approached the full term of forty weeks of pregnancy, the greater are the chances of her child being born alive and healthy.

The premature child is by no means necessarily still-born. It breathes, but does so imperfectly, so that air does not enter all the smaller air-cells; and its voice is a whimper rather than a cry. Those changes in the heart and large vessels, which prepare, as pregnancy draws to a close, for the altered course of the blood when the child has to breathe through the lungs, are too little advanced for it to bear well the sudden alteration in its mode of being. The feebly beating heart and the not completely developed lungs seem but imperfectly to maintain the bodily heat. The glands of the stomach and intestines are not yet fit to perform digestion properly, while the muscular power is too feeble for the effort at sucking. Everything is sketched out, but to nothing has the finishing touch been put, and hence the frail machinery too often breaks down, in the endeavour to discharge its functions.

It is surprising, however, with what rapidity Nature in some instances perfects the work which she has been called on prematurely to perform.

It is our business to second Nature's endeavours. First of all, and of most importance, is the duty of providing from without the warmth which the child is unable to generate. When very feeble, it must, even without any previous washing or dressing, be at once wrapped in cotton wool, and then in a hot blanket, and surrounded with hot-water bottles. A tin stomach-warmer filled with hot water is very convenient to place under the blanket on which the child lies. Being too feeble to suck, it must be fed, a few drops at a time, from a small spoon; or still better, if it is able to make any effort at sucking, it may draw its nourishment through a quill. The mother after a premature confinement is almost sure to have no milk with which to nourish her child, at any rate for two or three days. It is, therefore, wise to obtain the help of a woman with a healthy baby. She must be allowed to bring her baby with her, since otherwise her supply of milk would fail, especially if she had no other means of getting rid of it than by the breast-pump or by drawing her breast. Even though she may have her own baby, there are few women who can submit, for more than a very few days, to the artificial emptying their breast without the secretion being either greatly lessened or altogether arrested. This, therefore, must be regarded as a resource available only for a few days, and as the child gains strength every effort must be made to get it to take its mother's breast, if she has any supply, or that of the wet-nurse. If this is found impossible, it will be wisest to give up, at any rate for the present, the attempt to nourish the child from the breast, and to obtain for it asses' milk, which is the best substitute. By no means whatever can more than from a sixth to a fourth part of a pint of milk be obtained either by the breast-pump or by drawing the breast; and since a healthy infant of a few weeks old sucks about two pints of milk in twenty-four hours, it is evident that the supply artificially obtained must after the first few days be utterly inadequate.

I have in cases of extreme weakness in premature children succeeded in preserving them by giving them every two hours for two or three days ten measured drops of raw beef juice, five of brandy, and two teaspoonfuls of breast milk. Medicine has no place in the management of these cases; the question is one entirely of warmth, food, and for a time the judicious use of stimulants.

**Imperfect Expansion of the Lungs.**—Children not premature and perfectly well nourished are yet sometimes feeble, breathe imperfectly, cry weakly, suck difficultly or not at all, and die at the end of a few days. Their lamp of life flickered and went out. Such cases are met with for the most part in conditions similar to those in which children are actually still-born; or now and then they take place when labour has been of unusually short duration, the child hurried into the world too rapidly; while in other instances it is not possible to account for their occurrence.

For a long time the nature of these cases was not understood; but rather more than sixty years ago a German physician discovered that air had entered the lungs but imperfectly; that perhaps a third, perhaps even as much as half, of the lungs had never been dilated, but had remained solid and useless; that in consequence the blood was but half-purified, and vitality therefore but half-sustained. The lungs, however, were found to have undergone no real change; they were not diseased, but if air was blown into them the dark solid patches sunk below the level of the surrounding substance, expanded, grew bright in colour and like a sponge from which the water has been squeezed, and crackled, or crepitated as the technical term is, from the air contained within them.

We breathe in health so without conscious effort that we never realise the fact that, according to the calculation of most competent observers, the mere elasticity of the lungs, independent even of the elasticity of the chest walls, opposes a resistance to each inspiration equal to 150 pounds avoirdupois in the grown man and 120 in the grown woman. The want of breath puts the respiratory muscles into play: the man takes a deep inspiration, and by this unconscious effort, he overcomes the resistance of the chest and the elasticity of the lungs. The new-born infant feels the same want and makes the same effort; but its muscular power is small, and its inspirations are often so feeble as to draw the air in some parts only into the larger tubes, while many of the smaller remain undilated, and much of the lung continues in the state in which it was before birth. The blood being thus but imperfectly purified, all the processes of nutrition go on imperfectly, the vital powers languish, the inspiratory efforts become more and more feeble, while the elasticity of the lung is constantly tending to empty the small cells of air and to oppose its entrance, and next the temperature sinks and the infant dies.

Cases in which this condition of the lungs exists usually present the history of the child from the very first having failed to utter a strong and loud cry like that of other children. Even after breathing has gone on for some time, such children usually appear feeble, and they suck with difficulty, although they often make the effort. An infant thus affected sleeps even more than new-born infants usually do; its voice is very feeble, and rather a whimper than a cry. In the cry of the healthy infant you at once detect two parts—the loud cry, suffering or passionate as the case may be, and the less loud back draught of inspiration. The French have two words for these two sounds—the *cri* and the *reprise*. The *cri* is feeble, the *reprise* is altogether wanting wherever expansion of the lung has to any considerable extent failed to take place, and you would hail this second sound as the best proof of an improvement in the child's condition.

If you watch the child with a little attention you will see that while the chest moves up and down, it is very little, if at all, dilated by the respiratory movements. The temperature falls, the skin becomes pale, and the lips grow livid, and often slight twitching is observed about the muscles of the face. The difficulty in sucking increases, the cry grows weaker and more whimpering, or even altogether inaudible, while breathing is attended with a slight rattle or a feeble cough, and the convulsive movements return more frequently, and are no longer confined to the face, but affect also the muscles of the extremities. Any sudden movement suffices to bring on these convulsive seizures, but even while perfectly still the child's condition is not uniform, but it will suddenly become convulsed, and during this seizure the respiration will be extremely difficult, and death will seem momentarily impending. In a few minutes, however, all this disturbance ceases, and the extreme weakness of the child, its inability to suck, its feeble cry, and its frequent and imperfect inspirations, are the only abiding indications of the serious disorder from which it suffers. But the other symptoms return again and again, until after the lapse of a few days or a few weeks the infant dies.

I have dwelt at some length on this condition because it is important to know that during the first few weeks of life real inflammation of the lungs or air-tubes is of extremely rare occurrence, and that the symptoms which are not infrequently supposed to depend on it are really due to a portion of the lung more or less extensive never having been called into proper activity. I may add that we shall hereafter have to notice a similar condition of the lung—its collapse after having once been inflated

—as occurring sometimes in the course of real inflammation of the organs of respiration in early life, and forming a very serious complication of the original disease.

If the collapse of the lung is not so considerable as to destroy life within the first few hours or days after birth, the babe wastes as well as grows weaker and weaker, and this wasting coupled with the difficult breathing not seldom causes the fear that the child has been born consumptive and that its death is inevitable.

No such gloomy view need be taken. Collapse, or at least non-expansion of the lung to some extent, is by no means unusual: consumptive disease to such an extent in the new-born infant as to interfere with the establishment of breathing is extremely rare. The consumptive babe can suck, it is not so weak as the one whose lungs are imperfectly expanded; it has no convulsive twitchings, nor any of the strange head-symptoms which we notice in the former. It wastes less rapidly, it is feverish instead of having a lower temperature than natural, it seems less ill, and yet its death within a few weeks or months is absolutely certain; while the child whose lungs are not diseased but simply unexpanded may, if that accidental condition is removed, grow up to vigorous manhood.

The treatment of these cases is abundantly simple. The child who breathes imperfectly but ill maintains its heat. It must be kept warm at a temperature never less than 70°; it may, like the premature child, need stimulants, and all the precautions already mentioned as to feeding. Twice in the day it should be put for five minutes in a hot bath at 100°, rendered even more stimulating by the addition of a little mustard. The back and chest may be rubbed from time to time with a stimulating liniment, and an emetic of ipecacuanha wine may be given twice a day. The act of vomiting not only removes any of the mucus which is apt to accumulate in the larger air tubes, but the powerful inspirations which follow the effort tend to introduce air into the smallest vesicles of the lungs, and to do away with their collapse.

Let these directions be carried out sensibly, patiently, perseveringly, and three times out of four, or oftener still, the mother's ear will before many days be greeted by the loud cry, with its *cri* and *reprise* of which I have already spoken, and which assures her that her little one will live.

There are no other affections of the lungs so peculiar to the first month of life as to call for notice here. I shall have a few observations to make about malformations of the heart, and the precautions for which they call in the after-life of children; but they will find their fittest place in the chapter on Affections of the Chest.

**Jaundice of New-born Children.**—A certain yellow tinge of the skin, unattended by any other sign of jaundice, such as the yellowness of the eye and the dark colour of the urine, is by no means to be confounded with real jaundice. It is no real jaundice, but is merely the result of the changes which the blood with which the small vessels of the skin are overcharged at birth is undergoing; the redness fading as bruises fade, through shades of yellow into the genuine flesh colour.

This is no disease, to be treated with the grey powder and the castor oil wherewith the over-busy monthly nurse is always ready. It is a natural process, which the intelligent may watch with interest, with which none but the ignorant will try to interfere.

There is, however, beside this a real jaundice, in which the skin is more deeply stained, the whites of the eyes are yellow, the urine high-coloured, and in which the dark evacuations that carry away the contents of the bowels before birth are succeeded by white motions, from which the bile is absent. This condition is not very usual, save where children have been exposed to cold, or where the air they breathe is unwholesome. Of this no better proof can be given than is afforded by the fact that in the Dublin Lying-in Hospital, where the children are defended with the greatest care both from cold and from a vitiated atmosphere, infantile jaundice is extremely rare, while it attacks three-fourths of the children received into the Foundling Hospital of Paris. Still it does sometimes occur when yet no cause can be assigned for it, and it is noteworthy that it is sometimes met with in successive infants in the same family.



As the respiratory function and that of the skin increase in activity, the jaundice will disappear of its own accord. Great attention must be paid during its continuance to avoid exposure of the child to cold, while no other food than the mother's milk should be given. If the bowels are at all constipated, half a grain of grey powder or a quarter of a grain of calomel may be given, followed by a small dose of castor oil, and the aperient will often seem to hasten the disappearance of the jaundice; but in a large number of cases even this amount of medical interference is not needed.

There is, indeed, a very grave form of jaundice, happily of excessive rarity, due to malformation of the liver, to absence or obstruction of the bile-ducts, and often accompanied with bleeding from the navel. I do but mention it; the intensity and daily deepening of the jaundice, the fruitlessness of all treatment, and the grave illness of the child, even though no bleeding should occur, render it impossible to confound this hopeless condition with the trivial ailment of which I have been speaking.

The next chapter will furnish a fitter place than the present for speaking fully of the Disorders of the Digestive Organs.

I will say now but this: that whatever a mother may do eventually, she avoids grave perils for herself by suckling her infant for the first month; while the health of her child, just launched upon the world, is terribly endangered if fed upon those substitutes for its proper nutriment on which after the lapse of a few weeks it may subsist, may even manage to thrive.

There are some local affections incident to the new-born child concerning which a few words may not be out of place; and first of the

**Ophthalmia of New-born Children.**—It is the cause of the loss of sight of nine-tenths of all persons who, among the poor, are said to have been born blind. In the wealthier classes of society it is comparatively rare, and seldom fails to meet with timely treatment, yet many people scarcely realise its dangerous character, or the extreme rapidity of its course.

It generally begins about the third day after birth with swelling of the lid of one or other eye, though both are soon involved. The eyelids swell rapidly, and if the affection is let alone, they soon put on the appearance of two semi-transparent cushions over the eyes. On separating the lids, which it is often very difficult to do owing to the spasmodic contraction of the muscles, their inner surface is seen to be enormously swollen, bright red, like scarlet velvet, bathed in an abundant yellowish thin secretion, which often squirts out in a jet as the lids are forcibly separated. Great care must be taken not to allow any of this fluid to enter the eye of a bystander, nor to touch his own eye until the fingers have been most carefully washed, since the discharge is highly contagious, and may produce most dangerous inflammation of the eyes of any grown person. The discharge being wiped or washed away, the eye itself may be seen at the bottom of the swelling very red, and its small vessels very blood-shot. By degrees the surface of the eye assumes a deeper red, it loses its brightness and its polish, while the swelling of the lids lessens, and they can be opened with less difficulty; their inner surface at the same time becomes softer, but thick and granular, and next the eyes themselves put on likewise a granular condition which obscures vision. The discharge by this time has become thicker and white, and looks like matter from an abscess. By slow degrees the inflammation may subside, the discharge lessen, the swelling diminish, and the eye in the course of weeks may regain its natural condition. But the danger is—and when proper treatment is not adopted early the danger is very great—lest the mischief should extend beyond the surface of the eye, lest ulceration of the eye should take place, the ulceration reach so deep as to perforate it, and not merely interfere with the sight, but destroy the organ of vision altogether.

In every instance, then, in which the eyelids of a new-born infant swell, or the slightest discharge appears from them, the attention of the doctor must at once be called to the condition. In the meantime, and during whatever treatment he may think it right to follow, the eye must be constantly covered with a piece of folded lint dipped in cold water; and every hour at least the eye must be opened and tepid water squeezed into it abundantly from a sponge held above, but not touching it, so as to completely wash away all the discharge. A weak solution of alum and zinc, as one grain of

the latter to three of the former to an ounce of water, may in like manner be dropped from a large camel's-hair brush four times a day into the eye after careful washing. Simple as these measures are they yet suffice, if adopted at the very beginning, and carried on perseveringly, to entirely cure in a few days an ailment which if let alone leads almost always to most lamentable results.

I do not pursue the subject further, for bad cases require all the care of the most skilful oculist for their treatment.

**Scalp Swellings.**—Almost every new-born child has on one or other side of its head a puffy swelling, owing to the pressure to which the head has been subjected in birth, and this swelling disappears at the end of twenty-four or forty-eight hours.

Now and then, however, though indeed very seldom, the swelling does not disappear, but it goes on gradually increasing and becoming more definite in its outlines until at the end of three or four days it may be as big as half a small orange, or sometimes even larger, soft, elastic, painless, under the unchanged scalp, but presenting the peculiarity of having a hard raised margin with a distinct edge, which gives to the finger passed over it the sensation of a bony ridge, beyond which the bone seems deficient. This tumour is due usually to the same cause as that which produces the other temporary puffy swelling of the scalp, only the pressure having been more severe, blood has actually been forced out from the small vessels under the membrane which covers the skull, and hence its gradual increase, its definite outline; and hence, too, the bony ridge which surrounds it, and which is due to nature's effort at cure, in the course of which the raised edge of the membrane covering the skull (the *pericranium*) becomes converted into bone.

When the nature of these swellings was not understood, they used to be poulticed, and to be opened with a lancet to let out their contents. We know now, however, that we have nothing to do but to let them alone; that by degrees the blood will be absorbed and the tumour will disappear, and as it does so we may trace the gradual transformation of the membrane which covered it into bone, as we feel it crackling like tinsel under the finger. Two, three, or four weeks may be needed for the entire removal of one of these blood-swellings. The doctor will at once recognise its character, and you will then have nothing to do but to wait—often, unhappily, so much harder for the anxious mother than to meddle.

**Ruptured Navel.**—There is a period some time before the birth of a child when the two halves of its body are not united in front, as they become afterwards; and hare-lip or cleft-palate sometimes remains as the result of the arrest of that development which should have closed the fissured lip or united the two halves of the palate.

In a similar way it happens sometimes that though the skin is closed, the muscles of the stomach (or, more properly speaking, of the belly) are not in the close apposition in which they should be, so that the bowels are not supported by the muscles, but protected only by the skin.

More frequently than this, especially in the case of children who are born before the time, the opening through which the navel string passes is large at birth, and fails to close as speedily and completely as it should do afterwards. When everything goes on as it ought, the gradual contraction of the opening helps to bring about the separation of the navel string and its detachment, and the perfect closure of the opening takes place at the same time, between the fifth and the eighth day after birth.

If this does not occur, the bowels are very apt to protrude through the opening, and if allowed to do so for weeks or months, the opening becomes so dilated that its closure is impossible, and the child grows up afflicted permanently with rupture through the navel. This is always an inconvenience, sometimes even a source of serious danger; but if means are taken to prevent the condition becoming worse, nature seldom fails eventually to bring about a cure, and to effect the complete closure of the opening.

If the muscles on either side do not come into apposition, but leave a cleft between them, the infant should constantly wear a broad bandage of fine flannel round the stomach, not applied too tightly, in order to give support. The circular bandages of vulcanised india-rubber with a pad in the

centre are nowise to be recommended. The pad is apt to become displaced, and to press anywhere but over the navel, while its edges irritate the infant's delicate skin, and the pressure which it exerts if it is sufficiently tight to retain its place interferes with respiration.

A pad composed of pieces of plaster spread on wash-leather, and of graduated sizes and kept in place by adhesive strapping,<sup>7</sup> answers the purpose of preventing the protrusion at the navel, and of thus facilitating the closure of the ring better than any other device with which I am acquainted. They need, however, to be continued even for two or three years, and though they should have been left off it is wise to resume their use if the child should be attacked by whooping-cough, diarrhoea, or any other ailment likely to occasion violent straining.

## CHAPTER V. ON THE DISORDERS AND DISEASES OF CHILDREN AFTER THE FIRST MONTH, AND UNTIL TEETHING IS FINISHED

**Infantile Atrophy.**—In by far the greater number of instances, the wasting of young children is due to their being fed upon food which they cannot digest, or which when digested fails to yield them proper nourishment. I quoted some figures in my introductory remarks, to show from the evidence obtained at Berlin how much larger was the proportion of deaths under the age of one year among hand-fed infants than among those brought up at the breast. Foundling hospitals on the Continent, in which the children are all drawn from the same class, and subjected in all respects to a similar treatment, except that in some they are fed at the breast, in others brought up by hand, show a mortality in the latter case exactly double of that in the former.

It is as idle to ignore these facts, and to adduce in their disproof the case of some child brought up most successfully by hand, as it would be to deny that a battle-field was a place of danger because some people had been present there and had come away unwounded.

But it is always well not merely to accept a fact, but also to know the reason why a thing is so. The reason is twofold: partly because the different substitutes for the mother's milk, taken for the most part from the vegetable kingdom, are less easy of digestion than the milk, and partly because, even were they digested with the same facility, they do not furnish the elements necessary to support life in due proportion.

All food has to answer two distinct purposes: the one to furnish materials for the growth of the body, the other to afford matter for the maintenance of its temperature; and life cannot be supported except on a diet in which the elements of nutrition and those of respiration bear a certain proportion to each other. Now, in milk, the proper food of infants, the elements of the former are to those of the latter about in the proportion of 1 to 2, while in arrowroot, sago, and tapioca they are only as 1 to 26, and in wheaten flour only as 1 to 7. If to this we add the absence in these substances of the oleaginous matters which the milk contributes to supply the body with fat, and the smaller quantity, and to a certain extent the different kind, of the salts which they contain, it becomes apparent that by such a diet the health if not the life of the infant must almost inevitably be sacrificed.

But these substances are not only less nutritious, they are also less easy of digestion than the infant's natural food. We all know how complex is the digestive apparatus of the herbivorous animal, of which the four stomachs of the ruminants are an instance, and how large is the bulk of food in proportion to his size which the elephant requires, compared with that which suffices for the lion or the tiger.

The stomach of the infant is the simple stomach of the carnivorous animal, intended for food which shall not need to stay long in that receptacle, but shall be speedily digested; and it is only as

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<sup>7</sup> These plasters for ruptured navel in sets of a dozen are to be had of Ewen, 106 Jermyn Street, St. James's, London, and I dare say at many other places besides.

the child grows older, and takes more varied food, that the stomach alters somewhat in form, that it assumes a more rounded shape, resembling somewhat that of the herbivorous animal, and suited to retain the food longer. The young of all creatures live upon their mother for a certain time after birth; but in all the preparation for a different kind of food, and with it for an independent existence, begins much sooner and goes on more rapidly than in man. Young rabbits are always provided with two teeth when born, and the others make their appearance within ten days. In the different ruminants the teeth have either begun to appear before birth, or they show themselves a few days afterwards; and in either case dentition is completed within the first month, and in dogs and cats within the first ten weeks of existence.

In the human subject the process of teething begins late, between the seventh and the ninth month, and goes on slowly: the first grinding teeth are seldom cut before the beginning of the second year, and teething is not finished until after its end. Until teething has begun the child ought to live exclusively on the food which nature provides; for until that time the internal organs have not become fitted to digest other sustenance, and the infant deprived of this too often languishes and dies. To get from other food the necessary amount of nourishment, that food has to be taken in larger quantities, and, from the difficulty in digesting it, needs to remain longer in the stomach than the mother's milk. One of the results of the indigestibility of the food is that the child is often sick, the stomach getting rid of a part of that food which it is unable to turn to any useful purpose; and so far well. But the innutritious substances do not relieve the sense of hunger. The child cries in discomfort, and more is given to it, and by degrees the over-distended stomach becomes permanently dilated, and holds a larger quantity than it was originally meant to contain. The undigested mass passes into a state of fermentation, and the infant's breath becomes sour and offensive, it suffers from wind and acid eructations, and nurses sometimes express surprise that the child does not thrive since it is always hungry. While some of the food is got rid of by vomiting, some passes into the intestines, and there becomes putrid, as the horribly offensive evacuations prove. They come away, large and solid and white, for the secretion of the bile is inadequate to complete that second digestion which should take place in the intestines; or else the irritation which they excite occasions diarrhoea—a green putty-like matter comes away mixed with a profuse watery discharge.

What wonder is it that in such circumstances the body should waste most rapidly; for it is forced from its own tissues to supply those elements essential to the maintenance of life, which its food contains in far too scanty a proportion. Every organ of the body contributes to the general support, and life is thus prolonged, if no kind disease curtail it, until each member has furnished all that it can spare, and then death takes place from starvation, its approach having been slower, but the suffering which preceded it not therefore less, than if all food had been withheld.

Do not suppose that in this description I have been painting too dark a picture, or that children who die thus have been exceptionally weak, and so under the acknowledged difficulties of hand-feeding at length became consumptive. They do not die of consumption, and in a large number of instances their bodies show no trace of consumptive disease, but present appearances characteristic of this condition of starvation, and of this only.

Along the whole track of the stomach and intestines are the signs of irritation and inflammation. The glands of the bowels are enlarged, actual ulceration of the stomach is often met with; while so far-reaching is the influence of this slow starvation, that even the substance of the kidneys and of the brain are often found softened and otherwise altered, though it might not unreasonably have been supposed that these organs lay quite beyond the reach of any disorder of digestion.

No doubt all these grievous results do not always follow; and sometimes children exceptionally strong manage to take and digest enough even of unsuitable food to maintain their health, and may as they grow up, and the changes take place in the system which fit it for a varied diet, even become robust. In the majority of instances, however, hand-fed infants, and those especially who have been brought up chiefly on farinaceous food, are less strong than others, and are more apt to develop any

latent tendency to hereditary disease, such as scrofula or consumption, than members of the same family who have been brought up at the breast.

Enough has already been said to satisfy all but those who do not wish to be convinced, how incumbent it is on every mother to try to suckle her child. But though it is most desirable that for the first six months of their existence children should derive their support entirely from their mother, and that until they are a year or at least nine months old their mother's milk should form the chief part of their food, yet many circumstances may occur to render the full adoption of this plan impracticable. In some women the supply of milk, although at first abundant, yet in the course of a few weeks undergoes so considerable a diminution as to become altogether insufficient for the child's support; while in other cases, although its quantity continues undiminished, yet from some defect in its quality it does not furnish the infant with proper nutriment. Cases of the former kind are not unusual in young, tolerably healthy, but not robust women; while instances of the latter are met with chiefly among those who have given birth to several children, whose health is bad, or among the poor, who have been enfeebled by hard living or hard work. The children in the former case thrive well enough for the first six weeks or two months, but then, obtaining the milk in too small a quantity to meet the demands of their rapid growth, they pine and fret, they lose both flesh and strength, and, unless the food given to supply their wants be judiciously selected, their stomach and bowels become disordered, and nutrition, instead of being aided, is more seriously impaired. In the case of the mother whose milk disagrees with the child from some defect in its quality, the signs are in general more pronounced. Either the infant vomits more than that small quantity which a babe who has sucked greedily or overmuch often rejects immediately on leaving the breast, or it is purged, or it seems never satisfied, does not gain flesh, does not thrive, cries much and is not happy. In these cases, too, the mother's supply of milk, though abundant at first, diminishes in a few weeks; she feels exhausted, and suffers from back-ache, or from pain in the breasts each time after the child's sucking; while, further, her general weakness leaves her no alternative but to wean the child.

Knowing the attempt to rear her child entirely at the breast to be vain, the mother may in such cases be tempted to bring it up by hand from the very first. But how short soever the period may be during which the mother may be able to suckle her child, it is very desirable that she should nurse it during that period, and also that her milk should then constitute its only food. For the first four or five days after the infant's birth the milk possesses peculiar qualities, and not merely abounds in fatty and saccharine matter, but presents its casein or curd in a form in which it is specially easy of digestion. These peculiarities indeed become less marked within a week or two; but not only is it of moment that the infant should at any rate make its start in life with every advantage, but the mother who nurses her little one even for a month avoids thereby almost half the risks which follow her confinement. For the indolent, among the wealthy, a numerous class who have but to form a wish in order to have it gratified, a wet-nurse for the baby suggests itself at once to the mother as a ready means of saving herself trouble, and of shirking responsibility. This course, to which love of pleasure and personal vanity tend alike to prompt her, often finds, in spite of all opposing reasons, the approval of the nurse, to whom it saves trouble, and the too ready acquiescence of the doctor in a course which pleases his patient. But many circumstances besides those moral considerations, which ought never to be forgotten before the determination is formed to employ a wet-nurse, may put this expedient out of the question, and it becomes therefore of importance to learn what is the best course for a mother to adopt who is either wholly unable to suckle her child, or who can do so only for a very short time.

It is obvious that the more nearly the substitute approaches to the character of the mother's milk, the greater will be the prospect of the attempt to rear the child upon it proving successful. There is no argument needed to prove that the milk of some animal more closely resembles the mother's milk, and is more likely to prove a useful substitute for it than any kind of farinaceous substance. The milk of all animals, however, differs in many important respects from human milk, and differs too very widely in different animals. Thus, the milk of the cow and that of the ewe contain nearly double

the quantity of curd, and that of the goat more than twice the quantity of butter, and it is only in the milk of the ass that the solid constituents are arranged in the same order as in man. On this account, therefore, asses' milk is regarded, and with propriety, as the best substitute for the child's natural food. Unfortunately, however, expense is very frequently a bar to its employment, and compels the use of the less easily digested cows' milk. But though the cost may be a valid objection to the permanent employment of asses' milk, it is yet very desirable when a young infant cannot have the breast, that it should be supplied with asses' milk for the first four or five weeks, until the first dangers of the experiment of bringing it up by hand have been surmounted. The deficiency of asses' milk in butter may be corrected by the addition of about a twentieth part of cream, and its disposition to act on the bowels may be lessened by heating it to boiling point, not over the fire but in a vessel of hot water; and still more effectually by the addition to it of a fourth part of lime-water or of a teaspoonful of the solution of saccharated carbonate of lime to two ounces or four tablespoonfuls of the milk.

When cows' milk is given, it must be borne in mind that it contains nearly twice as much curd, and about an eighth less sugar, than human milk. It is therefore necessary that it should be given in a diluted state and slightly sweetened. The dilution must vary according to the infant's age; at first the milk may be mixed with an equal quantity of water, but as the child grows older the proportion of water may be reduced to one-third. Mere dilution with water, however, leaves the proportion of curd unaltered, and it is precisely the curd which the infant is unable to digest. Instead, therefore, of diluting the milk simply with water, it is often better to add one part of whey to about two parts of milk, which, according to the child's age, may or may not be previously diluted<sup>8</sup>.

Attention must be paid to the temperature of the food when given to the infant, which ought to be as nearly as possible the same as that of the mother's milk, namely from 90° to 95° Fahrenheit, and in all cases in which care is needed a thermometer should be employed in order to insure the food being given at the same temperature. Human milk is alkaline, and even if kept for a considerable time it shows little tendency to become sour. The milk of animals when in perfect health likewise presents an alkaline reaction, and that of cows when at grass forms no exception to this rule. Milk even very slightly acid is certain to disagree with an infant; it is therefore always worth while the moment that a hand-fed infant seems ailing to ascertain this point. If alkaline, the milk will deepen the blue colour of litmus paper, which is to be had of any chemist; if acid, it will discharge the colour and turn it red. It is, perhaps, as well to add that, as the oxygen in the atmosphere tends to redden litmus paper, it should not be left exposed to the air, but should always be kept in a glass-stoppered bottle.

The milk of the cow is very liable to alteration from comparatively slight causes, and particularly from changes in the animal's diet; while even in the most favourable circumstances if the animal is shut up in a city and stall-fed, all the solid constituents of its milk suffer a remarkable diminution; while the secretion further has a great tendency to become acid, or to undergo even more serious deterioration. Mere acidity of the milk can be counteracted for the moment by the addition of lime-water, or by stirring up with it a small quantity of prepared chalk, which may be allowed to subside to the bottom of the vessel; or if it should happen, though indeed that is rarely the case in these circumstances, that the child is constipated, carbonate of magnesia may be substituted for the chalk or lime-water. If these simple proceedings are not sufficient to restore the infant's health, it will be

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<sup>8</sup> The directions given by the distinguished chemist, Dr. Frankland, to whom I am indebted for the suggestion, are as follows: 'One-third of a pint of new milk is allowed to stand until the cream has settled; the latter is removed, and to the blue milk thus obtained about a square inch of rennet is to be added, and the milk vessel placed in warm water.' (I may add that the artificial rennet sold by most chemists may be substituted for the other.) 'In about five minutes the rennet, which may again be repeatedly used, being removed, the whey is carefully poured off, and immediately heated to boiling to prevent its becoming sour. A further quantity of curd separates, and must be removed by straining through calico. In one quarter of a pint of this hot whey is to be dissolved three-eighths of an ounce of milk sugar, and this solution, along with the cream removed from the one-third of a pint of milk, must be added to half a pint of new milk. This will constitute the food for an infant of from five to eight months old for twelve hours; or, more correctly speaking, it will be one-half of the quantity required for twenty-four hours. It is absolutely necessary that a fresh quantity should be prepared every twelve hours; and it is scarcely necessary to add that the strictest cleanliness in all the vessels used is indispensable.'

wise to seek at once for another source of milk supply, and to place the suspected milk in the hands of the medical officer of health or of the public analyst, in order that it may be submitted to a thorough chemical and microscopical examination.

The difficulty sometimes found in obtaining an unvaryingly good milk supply, as well as practical convenience in many respects, has led to the extensive employment of various forms of condensed milk. They form undoubtedly the best substitute for fresh cows' milk which we possess, and are a great boon especially to the poor in large towns where the milk supply is often scanty, not always fresh, and sometimes of bad quality. I should certainly prefer condensed milk for an infant to milk from cows living in close dirty stables, such as my experience thirty years ago made me familiar with in some parts of London.

Still all the varieties of condensed milk are far inferior in quality to good fresh milk. They contain less butter, less albumen, that is to say less of the main constituents of all animal solids and fluids, and a greater proportion of what are termed the hydro-carbonates, such for instance as sugar; or, to state the same thing differently, the elements which serve for nutrition are in smaller proportion than in fresh milk to those which minister to respiration. They are not only less nutritious, but the large quantity of sugar which they contain not infrequently disagrees with the child, and causes bowel complaint. I do not know how far the so-called unsweetened condensed milk which has of late come into the market is free from this objection; but I have always preferred the Aylesbury condensed milk, which is manufactured with sugar, to the Swiss condensed milk, into which, as I have been given to understand, honey largely enters.

How much food does an infant of a month old require? what intervals should be allowed between each time of feeding? and how should the food be given? are three questions which call for a moment's notice. The attempt has been made to determine the first point by two very distinguished French physicians, who weighed the infants before and after each time of sucking. Their observations, however, were not sufficiently numerous to be decisive, and their results were very conflicting; the one estimating the quantity at two pounds and a quarter avoirdupois, which would be equivalent to nearly a quart, the other at not quite half as much; but the observations of the latter were made on exceptionally weak and sickly infants. Infants no doubt vary, as do grown people, as to the quantity of food they require. I should estimate from my own experience and observation, apart from accurate data, a pint as the minimum needed by an infant a month old; and while Dr. Frankland's estimate of a pint and a half for an infant of five months seems to me very reasonable, I should doubt its sufficing for a child of nine months unless it were supplemented by other food.

The infant during the first month of life takes food every two hours, and even when asleep should not be allowed to pass more than three hours; and this frequent need of food continues until the age of two, sometimes even until three, months. Afterwards, and until six months old, the child does not need to be fed oftener than every three hours during the twelve waking hours, and every four hours during the sleeping time. Later on, five times in the twenty-four hours, namely thrice by day, once the last thing at night, and once again in the early morning, are best for the child's health as well as for the nurse's comfort.

How is an infant not at the breast to be fed? Certainly not with the cup or spoon; a child so fed has no choice in the matter, but must either swallow or choke, and is fed as they fatten turkeys for the market. The infant, on the other hand, sucks the bottle as it would suck its mother's breast; it rests when fatigued, it stops to play, it leaves off when it has had enough, and many a useful inference may be drawn by the observant nurse or mother who watches the infant sucking, and notices if the child sucks feebly, or leaves off panting from want of breath, or stops in the midst, and cries because its mouth is sore or its gums are tender.

But it is not every bottle which an infant should be fed from, and least of all from those so much in vogue now with the long elastic tube, so handy because they keep the baby quiet, who will lie by the hour together with the end in its mouth, sucking, or making as though it sucked, even when



the bottle is empty. These bottles, as well as the tubes connected with them, are most difficult to keep clean; and so serious is this evil, that many French physicians not only denounce their use, in which they are perfectly justified, but prefer, to the use of any bottle at all, the feeding the infant with a spoon; and here I think they are mistaken. The old-fashioned flat bottle, with an opening in the middle, and a short end to which the nipple is attached without any tube, the only one known in the time of our grandmothers, continues still the best, and very good. My friend, Mr. Edmund Owen, in a lecture at which I presided at the Health Exhibition in August last year, pointed out very humorously the differences between the old bottle and the new. An infant to be kept in health must not be always sucking, but must be fed at regular intervals. The careful nurse takes the infant on her knee, feeds it from the old-fashioned feeding-bottle, regulating the flow of the milk according as the infant sucks heartily or slowly, withdraws it for a minute or two, and raises the child into a sitting posture if it seems troubled with flatulence, and then after a pause lets it recommence its meal. This occupies her a quarter of an hour or twenty minutes of well-spent time, while the lazy nurse, or the mother who has never given the matter a thought, just puts the tube in the infant's mouth, and either takes no further trouble or occupies herself with something else. And yet, obvious though this is, how constantly one sees infants taken about in the perambulator with the feeding-bottle wrapped up and laid by its side, because it is said the child always cries when it is not sucking, and the intelligence and the common sense are wanting, as well as the patient love, that would strive to make out which it is of many possible causes that makes the infant cry. One more observation with reference to bottle-feeding may not be out of place. It is this: that no food be left in the bottle after the child has had its meal, but that it should be emptied, washed out with a little warm water and soda, and it and the india-rubber end should be kept in water till again needed. To insure the most perfect cleanliness it is always well to have two bottles in use, and to employ them alternately.

How strictly soever an infant may be kept at the breast, or however exactly the precautions on which I have insisted are observed, sickness, constipation, or diarrhoea may occur, causing much anxiety to the parents, and giving much trouble to the doctor.

It sometimes happens, without its being possible to assign for it any sufficient reason, that the mother's milk disagrees with her infant, or entirely fails to nourish it, so that, much against her will, she is compelled to give up suckling it. In some instances this is due to errors in diet, to the neglect of those rules the observance of which is essential to health, as proper exercise for instance; and then the secretion is usually deficient in quantity as well as defective in its composition. In such cases the child often vomits soon after sucking, it suffers from stomach-ache, its motions are very sour, of the consistence of putty, and either green, or become so soon after being passed, instead of presenting the bright yellow colour and semi-fluid consistence of the evacuations of the healthy infant, and sometimes they are also lumpy from the presence of masses of undigested curd. In addition, also, the child is troubled with griping, which makes it cry; its breath is sour, or actually offensive, and the tongue is much whiter than it should be, though it must be remembered that the tongue of the sucking child always has a very slight coating of whitish mucus, and is neither as red nor as perfectly free from all coating as it becomes in the perfectly healthy child of three or four years old.

In these circumstances, the diminution of stimulants, such as the stout of which young women are sometimes mistakenly urged to take a quantity to which they were previously quite unaccustomed, is often followed by an increase of the quantity as well as an improvement in the quality of the milk. It is true that a nursing mother may often find her strength maintained, and her supply of milk increased, by taking a glass of stout at lunch and another at dinner, instead of, but not in addition to, any other stimulant; but mere stimulants will no more enable a woman to suckle her infant better than she otherwise would do, than they would fit a man to undergo great fatigue for days together, or to go through a walking tour in Switzerland. A tumbler of one-third milk and two-thirds good grit gruel taken three times a day will have greater influence in increasing the quantity of milk than any conceivable amount of stimulant.

There is an entirely opposite condition in which the infant does not thrive at the breast, and this for the most part is met with when the mother has already given birth to and suckled several children. In these instances the secretion is sometimes, though not always, abundant, but the infant does not thrive upon it. The babe does not get on, is always hungry after leaving the breast, and cries as though it wanted more; in addition to which it is often purged, either while sucking or within a few minutes afterwards, though the motions, except in being more frequent and more watery than in health, do not by any means constantly show any other change. The mother's history explains the rest. She is constantly languid, suffers from back-ache, feels exhausted each time after the babe has sucked, probably has neuralgia in her face, or abiding headache. In many instances, too, her monthly periods return, though as a rule they do not appear in healthy women while suckling. All these symptoms show that her system is not equal to the duty she has undertaken, and that therefore, for her sake as well as for that of the infant, she must give up the attempt.

One more case there is in which suckling has to be given up, at any rate in part, and that is when the milk is good in kind, but insufficient in quantity for the child as it grows older. This insufficiency of quantity shows itself at different periods after the infant's birth—at two months, three, or four. The child is not otherwise ill than that it is no longer bright, as it was wont to be, it ceases to gain flesh, it sleeps more than it used to do, though when it wakes it is always eager for the breast, and cries when leaving it, and if the experiment is made of giving it some milk and water immediately on leaving it, it takes that greedily. Mothers are loth to believe this failure of their resources, and in the case of some who have firm and well-formed breasts, there is but little change in their appearance to show that what remains may serve for beauty, not for use. But if while the child is sucking, the nipple is taken suddenly from its mouth, instead of innumerable little jets of milk, spirting out from the openings of the milk-ducts, the nipple will be seen to be barely moistened by its languid flow.

In conditions such as these the question of weaning partially or completely inevitably occurs, and where the mother's weakness is the occasion of the failure to nourish the child, half-measures are of no avail, for so long as she does not entirely give up the attempt to do that to which her health is unequal, her own state will grow worse, that of the child will not improve. When errors of diet or inattention to general rules of health incapacitate the mother from the performance of her duty, there may be hope from the adoption of a wiser course; while when the supply simply fails from its inadequacy, much may be hoped for from a wise combination of hand-feeding with nursing at the breast; the mother perhaps suckling the infant by day, but being undisturbed by demands upon her at night.

Last of all, I must refer to cases in which love has been stronger than reason, as indeed it often is, and in which young people with some pronounced hereditary taint of scrofula or consumption marry and have children. In such cases, if the consumptive taint is on the mother's side, it is, I believe, much wiser, in the inability to obtain a good wet-nurse, to bring up the child by hand rather than at the mother's breast. One word, however, applicable in such circumstances, age and long experience entitle me to add, and it is this. It is essential that, in the absence of that guarantee against the too rapid succession of pregnancies which suckling for a reasonable time presents, there should be self-restraint on both sides, lest the inscription on the young wife's grave should be, as I have too often known it, the same as, in despite of poetry and romance, her biographer assigns as the cause of the death of Petrarch's Laura, that she died worn out *crebris partibus*

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