

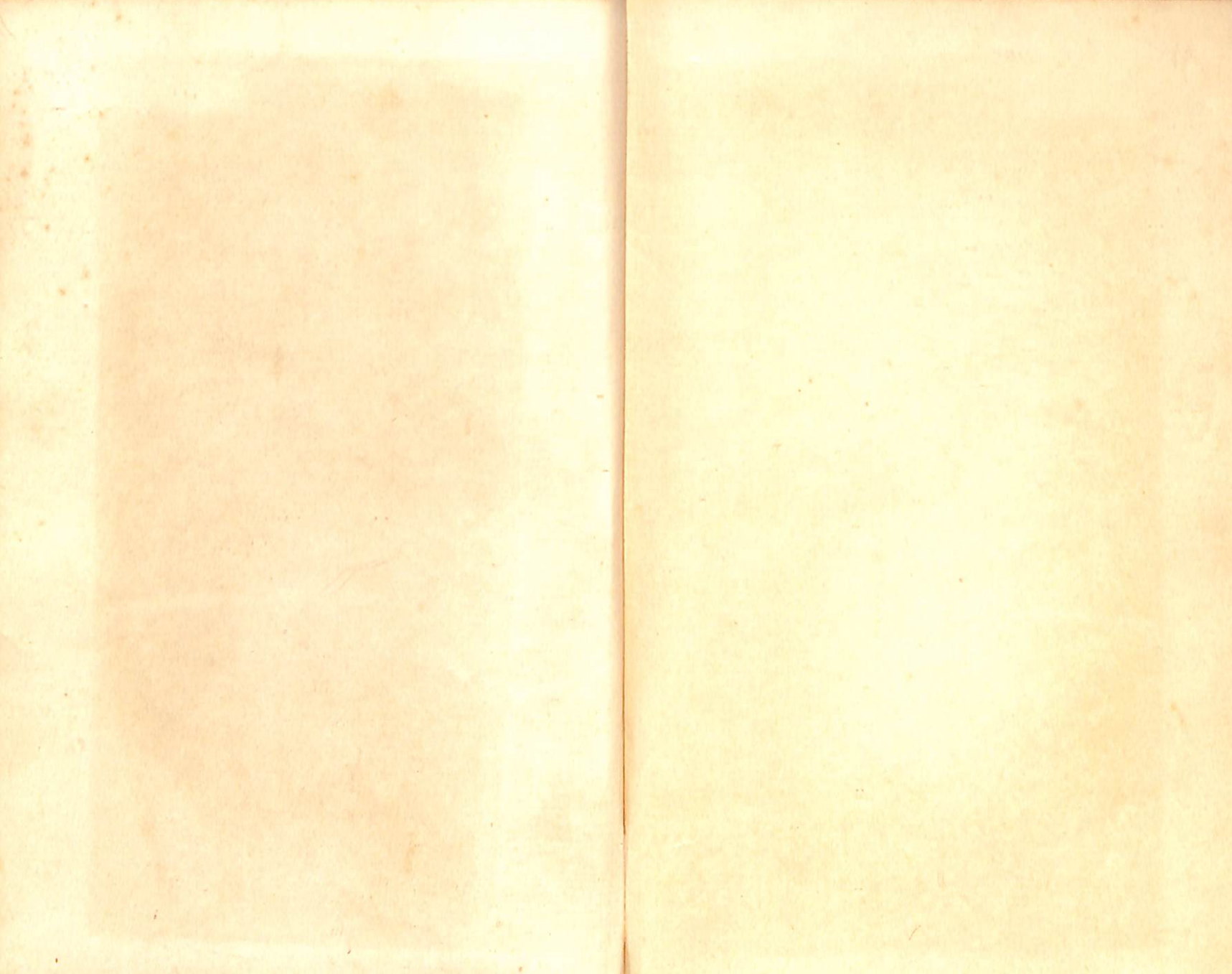
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THE STUDENT'S GUIDE  
TO  
DISEASES OF CHILDREN

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THE STUDENT'S GUIDE  
TO  
DISEASES OF CHILDREN

BY  
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SECOND EDITION

Fondo Santoro

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11 NEW BURLINGTON STREET

1886

Ah, World of ours, are you so gray  
And weary, World, of spinning,  
That you repeat the tales to-day  
You told at the beginning?

*Old World Idylls, and other Verses.*

AUSTIN DOBSON.

## PREFACE TO SECOND EDITION.

---

THE present edition has been thoroughly revised, and some slight but important additions and rearrangements made, which will, I think, enhance the value of the book. Not least of these is a much more copious index, which has been in great part compiled by Mr. C. H. Wells, and which deserves a full acknowledgment. In several places hints have been obtained from the American edition, which has been brought out under the able and sympathetic guidance of Dr. Louis Starr, Physician to the Children's Hospital, Philadelphia. Full consideration has also been given to such criticisms as have reached me. But in truth these have been so few and kindly, and the sale of the work has been so rapid, that but little suggestion for revision has been thus derived. It is a pleasure to add that in this as in the former edition, the experience, the sound judgment and active interest of my friend Dr. Lewis Marshall, of the Nottingham Hospital for Children, have been of the utmost help to me.

JAMES F. GOODHART.

*August 1886.*

## PREFACE TO FIRST EDITION.

---

MANY medical students have expressed to me their want of a small Manual upon Diseases of Children. To this, and to a request from Messrs. Churchill that I would fill up a gap in their series of Student's Guides, the appearance of the present volume is due. There are many who could have done the work far better than I; but, if an excuse be needed for well-intentioned temerity, it may be supposed that others were unable to undertake it.

As regards the scope of the work—in writing a book upon diseases of children I have not considered it my function to write one on general medicine, but so far as possible I have kept in view the diseases which seemed to be incidental to childhood, or such points in disease as appear to be so peculiar to, or pronounced in, children as to justify insistence upon them; and if the book meets the want it aims to supply, it will be due, I think, as much to its omissions as to its contents. For example, in dealing with pneumonia and bron-

chitis, there will be found no minute description of physical signs; in heart disease, no consecutive account of such general symptoms as are common to all ages of life. I have taken for granted that the student already possesses some knowledge of general medicine, and have dwelt upon such points as belong peculiarly to childhood. This will explain a certain amount of disconnectedness which runs through the volume; and if beyond this it still be thought that I have been less precise than is desirable, I would reply that it is always difficult to be at the same time dogmatic and exact. "Knowledge brings doubts and exceptions and limitations, which are all hindrances to vigorous statement." Moreover, what may be considered a fault in some ways, is not without some and perhaps equivalent advantages; not the least being the fact that this conception of the student's wants has enabled me to follow more closely my own bent than would have been possible in a more systematic treatise. I am not without hope that in thus acting I may have accomplished at least one aim—viz., to supplement, not to supersede, the admirable textbooks already existing on the diseases of children. My obligations to these already published works I cannot attempt to sum, unconscious memory plays so large a part in the thought of every one of us. But this much I can say, that it

gives me no common pleasure to confess how much I owe to West, Rilliet and Barthez, Hillier, Eustace Smith, Henoch, Gerhardt, Steiner, Meigs and Pepper—amongst others; and last but not least, to two of the most realistic writers of our own day, Dr. Samuel Gee and Dr. Thomas Barlow. I have also availed myself of the observations upon the incubation of some of the exanthemata, which have from time to time appeared in the *Lancet* during the last few years, from the pen of Dr. Clement Dukes, of Rugby. Dr. Dukes' work in this direction is some of the most valuable that exists.

Of others who have more immediately helped me I must thank Dr. Newnham, our present resident medical officer at the Evelina Hospital, for aid on several occasions. Mr. Collier, head of the dispensing department at Guy's Hospital, has been kind enough to revise the Appendix of Formulæ; and my brother, the Rev. C. Alfred Goodhart, of Sheffield, and Dr. Lewis Marshall, Surgeon to the Hospital for Sick Children at Nottingham, have been at much trouble in revising and criticizing the proof-sheets. Of the labour thus ungrudgingly bestowed I alone can fully appreciate the value.

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25 WEYMOUTH STREET,  
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## THE DISEASES OF CHILDREN.

### INTRODUCTION.

WHAT is a child, and how the diseases of children differ from the diseases of adult life, are questions which must have confronted all who have written upon the ailments of childhood, and not a little puzzled them for an answer. By the pathologist, indeed, it may well be doubted if any valid reason can be given for separating diseases of children from those occurring at other epochs, for there are but few morbid changes found in childhood that are not to be seen at one time or another in the bodies of adults.

If we run over the various regions of the body, the brain, heart, lungs, lymphatic glands, and so on, few, and those but minor, differences can be pointed out between the products of disease in the child and of the same disease in an adult. Some diseases are more common at one time of life than at the other; but, should they overstep the limit of age usual to them, they appear in their old form, or with but slight modifications, such as would certainly not justify any one in devoting even a "manual" to their description.

The bones form the most notable exception to this rule: in rickets, some forms of osteitis and of enchondroma, we have examples of constancy of pecu-

liarity of morbid deposit; of constancy of limitation to the growing age; of constancy of peculiarity of distribution of the disease, and so on. Certain diseases of the skin and teeth might equally be advanced, but, having said even this, we should still be at fault for material for a book. The difficulties and differences which render it advisable that these diseases should receive special study are mostly those of semeiology and treatment; or they arise because the student, when first introduced to this branch of practice, finds himself thrown upon his own resources. In the *adult*, questions can be asked and clues obtained, which, notwithstanding that they often mislead, are, on the whole, a considerable aid in forming a diagnosis. With infants and children the history is faulty or often quite wanting, and here the student fails. For instance, it is a common occurrence in hospital practice to find that no account is forthcoming from the clinical clerk of some child that has been admitted since the last visit of the physician. "I have not yet seen the mother!" is the explanation of the remissness which is offered. Supposing now that we change the venue, so to speak, of this illustration to that of the veterinary surgeon, and one of the lower animals, and such an answer, were it conceivably possible, would be ludicrous. Yet there is not so very much difference between the student who has to investigate the diseases of children, and one who has to do with diseases of the lower animals. In both cases the diagnosis will chiefly rest upon the doctor's mere observation and examination; in both it is intelligible speech that is wanting. I am by no means desirous of underrating the history which a parent or relative can give; on the contrary, an intelligent mother and nurse are to be listened to patiently and attentively—they are often acute observers of early signs of ill health, or changes in the symptoms. All I wish to enforce is, that the previous history occupies a subordinate, not the chief, position, and the student is at all times to consider himself as indepen-

dent of it. Any help that can be obtained in this way is all well and good, but it is to come after, not before, a personal examination.

Supposing now that a child is before us, what is to be done in making a thorough examination? Our first care will be not to frighten the child—a task which at once calls into play tact, patience, and control of feeling. A strange face is alone sufficient to make a child cry, but, when that face belongs to the doctor, a word very early added to the child's small repertory, and when, as is often the case, it is associated indelibly with the memory of castor oil or Gregory's powder, inexperienced nature can hardly be expected not to revolt—and revolt it often does, regardless sometimes of the most exquisite tact. But much can be done to smooth matters by the expenditure of a little trouble: never be in a hurry; take time, that the child may become accustomed to you; talk to it, play with it, show it any glittering thing that may be at hand, and give it the stethoscope to play with. Any instrument that it may be necessary to use should first be made a plaything, the subsequent examination being often much facilitated by so doing. Do not touch a child till it has had a good look at you. Plenty of occupation is afforded in the meantime by talking to the mother or nurse. Then, with regard to special instruments, the thermometer, for instance, which is constantly in use, put it into the axilla and hold it there gently, with your eye on the column of mercury, talking to the child all the while, and even drawing its attention to it. If the forearm is not restrained, it will be possible to do this for a minute or two, during which you may watch the mercury quickly rise to a certain height, and then proceed more leisurely. If the child become restless, withdraw the instrument—the half-degree or so which the column may rise afterwards will be of little importance in drawing conclusions, whereas a fit of crying or any fright will render all further observations difficult. Some

advise that the temperature should be taken in the rectum, and no doubt one is more safe from possible error by so doing; but I do not think, all round, it is the best way. I *prefer* the axilla if the medical man is making the observation himself, but I often take it in the groin, or well tucked down between the scrotum or labium and thigh. The latter is the place if the child be asleep, but the reading will be, probably, not quite so high as in the axilla, and still less so than in the rectum. Whenever the surface has been exposed by bathing, or otherwise, the rectal temperature is alone reliable, at any rate in babies; in older children the mouth may be available. With the ophthalmoscope, again, try to get the instrument considered as a toy, the examination a game of play, and—with plenty of patience, for a child's eye partakes of the restlessness of its whole muscular system, and no fixed look at any object, however attractive, can be counted upon for more than a second or two—there are few children or infants in whom the optic discs may not be seen. It is essential to success in many cases not to touch the child. As soon as a finger is placed on the forehead to steady the lens used for the indirect method, many a child will rebel. The same remark applies still more forcibly to pulling up the upper lid to obtain a view of the pupil. The attention must be attracted by playing the light on and off the eye, and skill will come with practice in ascertaining the state of the fundus by repeated momentary glimpses rather than by any one prolonged view. Even the hæmacytometer, for which it is necessary to prick the finger, may be used without making a child cry, by making a rapid prick with a needle, and showing the resulting drop of blood to the child as a wonderful thing. Let me next say that the child is to be restrained as little as possible in any examination that may be necessary. The mother or nurse will often hold hands or legs, or crunch the head down upon the chest, as the first step to auscultation, and there is nothing which a child

resents more than restraint of this kind. Let the limbs be free to play or kick till they become unmanageable, and this will but seldom be the case if a little care be exercised. Let a baby play with the end of the stethoscope if it will; it is quite possible to distinguish the respiratory sounds, and after a time those of extraneous origin can be as readily ignored as can the noise made by a crying child. The fact that the child is crying is no excuse for not examining the chest—crying necessitates deep respiration, and is often advantageous for this reason. All that we need is more patience. In auscultation, also, it is often necessary to listen to the respiratory or heart sounds in snatches, and to fill in by repeated observations what is not permitted by continuous examination; and in many cases it is advisable to examine the back of the chest first.

Having given these few hints upon what to avoid, a few may follow concerning what has to be done—and first we must be careful to maintain an attitude of close observation. The points to be observed are often apparently trivial and difficult to keep in mind in any systematic way. There is the complexion of the child; the formation of its bones; the state of its skin and muscle—is it fat, spare, firm, or flabby; its size in proportion to its age; its general build; the shape of its head; the state of its fontanelle; the relative proportions of head and face; the condition of corneæ and pupils; the lines upon the face; the state of the nostrils; the gums, the teeth, the tongue; the ears; the shape of the chest and its movement; the abdomen and its movement; the character of the cry and the state of the nervous system. All these facts and many more, indicating as they do points negative and positive which are absolutely essential to the formation of a diagnosis and for forecasting the issues of the case and for treatment, must yet, being but preliminaries, often be taken in hurriedly, almost at a glance. To allow of this being done in any sense

completely, it is well to take each step in a regular method. Start where you will, adopt any plan, but proceed as much as possible upon this plan; and, while rapidity of execution comes with practice, abundant compensation will be obtained for any trouble that may be involved, in the frequency with which by so doing conclusions will be arrived at, and results obtained, which had not previously been expected, and would in all probability have been missed by less methodical observation.\* It is impossible in a short manual to go much into detail in a preliminary chapter, but one or two points may be selected to illustrate the importance of what has been said. For instance, the **cry** of a child may help to distinguish the ailment under which it is labouring. There is the noisy passionate cry of hunger; the wail of abdominal disease; the whine of exhaustion; the short sharp shriek of cerebral disease; the hoarse whispering cry of laryngitis. Much may be learned by a glance at the shape of the head. The **hydrocephalic head** is one which bulges in all directions. The forehead projects; the temporal fossæ become convex; the fontanelle and vertex more vaulted; even the occiput becomes more rounded, and, in this general tendency towards the assumption of a globular form in place of an ovoid, the inter-ocular space is widened outwards and the eyes are rendered too divergent.

The **rickety head** is an elongated one, and often laterally compressed or flattened and quadrilateral, and, although the forehead may be overhanging, it wants the width and general rounding seen in hydrocephalus. The head of the **syphilitic child** is sometimes of irregular shape, almost lobulated in appearance, and betrays its component bones by the position of the enlargements. The disease is one of osteophytic growth which forms upon the bones round the anterior fontanelle and spreads thence over their surfaces. The

\* Some useful hints on case taking in children may be obtained from Dr. Francis Warner's "Student's Guide to Case Taking."

fontanelle may thus appear to lie in a hollow, the frontal bone being unusually prominent, and the inter-frontal suture converted into a vertical ridge, from the exuberant bone-formation along it; while the parietal bones become bossed irregularly. This skull has been called the **natiform skull**, from the appearances produced by the bony elevations, and, as the bones are often soft, "**craniotabes**" may be associated with this condition. It is, however, still an open question whether this form of skull is due to syphilis or to rickets.

The **scaphoid skull** is a narrow skull, in which the frontal region is boat-like and slopes away from the median line, betokening the small brain of an imbecile or idiot. The **fontanelle** by bulging may indicate excess of blood or cerebro-spinal fluid within the cranium; by its size it may indicate defective ossification, and so rickets; but of more importance, because of almost invariable significance, is the depressed fontanelle of starvation and exhaustion; it indicates the immediate necessity of food or stimulants. As regards the **face**, it may be mentioned that shades of pallor are most suggestive—a dirty white (*café au lait*) stands for congenital syphilis; a sallow white for splenic disease; a pallor with a sub-tint of blue (*milk and water*) for tuberculosis; a livid, leaden, or earthy tint for collapse from abdominal disease.

There are certain markings upon the face—Jadelot's lines, as they are called, from the French physician who has described them very fully. Of these it must suffice to say that about the eyes or forehead they are usually indicative of cerebral disease. The nostrils are chiefly concerned in respiratory disease, and lines dividing outward from the mouth are occasionally seen in abdominal disease; one from the angle of the mouth outwards on to the cheek in respiratory disease. Then there are the various complexions which are supposed by many to indicate particular diatheses or tendencies to disease—the pretty, thin-skinned children of tubercular proclivities; the sallow, muddy appearance

of children prone to glandular abscesses; the dark-haired, pallid, but, on the whole, well-liking children of nervous habit, and so on. Of these, though they have in former times occupied much of the attention of writers of books, I shall say but little, because there is now considerable want of unanimity upon the subject, and because their importance is hardly measurable by facts, but depends upon inferences the accuracy and worth of which the student must test for himself. There is the sunken eye, the dark-coloured and depressed areola around it, indicative of collapse; the dilating *alæ nasi* of acute lung disease; the lividity of lips of chronic lung disease; the puffy congested eyelids and ecchymosed face of whooping-cough. For the chest we have the immobility of pleurisy; the unnatural præcordial bulging of a large heart; the sinking in of the lower ribs of atelectasis. Of the abdomen it may be said that enlargement is not necessarily due to disease. Children will constantly be brought for "consumption of the bowels," because they have diarrhœa and a large stomach. In the great majority of cases the enlargement is due to flatulent distension from defective feeding; sometimes to displacement of the liver and spleen by distortion of the thorax in rickety children. In *many* such there will be but *few* cases of organic disease, and of mesenteric disease it may be said that it is but seldom associated with any abdominal enlargement sufficient to attract the attention of the child's mother, and in my experience there has not often been any disease of the glands that could be felt by palpation. Of other diseases which give rise to abdominal enlargement in childhood a large liver or spleen, ascites, or renal tumours are perhaps the most frequent.

When we come to the more personal examination of the child, I would still inculcate the necessity of routine. It matters not how we proceed so long as some definite plan is regularly followed. Supposing, as is probable, that some idea of the nature of the case has been

gleaned from the preliminary survey, it is a good plan to start with the organ which is suspected to be at fault. If there be any reason for suspecting disease of the nervous system, it is as well at once to examine the eyes with the ophthalmoscope lest any subsequent action on our part may frighten the child and render the fundus oculi inaccessible. It is impossible to make any satisfactory use of the ophthalmoscope if the child is, or has been recently, crying. This done, and the state of the pupil and movements of the eyeball ascertained, the sight and hearing can be tested by a watch; and the precision of the various muscular movements of the extremities, by giving the child something to hold or pick up, and by making it walk, if old enough, or by watching the movements of the limbs in infants, too young to walk, as they lie on the mother's lap. The gums can be examined and the progress of dentition ascertained by gently rubbing the surface of the gums with the finger. The chest and abdomen should be examined in all cases. Some advise that the child should be stripped for this purpose, and this is a necessary measure in some cases. I do not advise it as a rule, for the reason which I have adopted throughout these suggestions—viz., that the child is to be frightened or put out of temper as little as possible. Children, all but the youngest infants, resent the process of undressing, and it is usually sufficient for our purpose that all the clothing be loosened. The greater part of the front and back of the chest can be by this means exposed and a thorough examination made. Percussion must be light, or it will mislead. A cracked-pot sound can be produced with facility in many a healthy child. A light vertical tap with one or two fingers upon a finger of the other hand placed flat upon the chest is all that is necessary, and special attention is to be paid to the intervertebral grooves as parts which are more frequently implicated in children than in adults. In auscultation it is very essential to make careful comparison of the two sides; of the bases with the apices; and to

remember that it sometimes happens that the more abnormal sounds are heard in the healthier lung. A student will often describe as bronchial breathing the exaggeratedly puerile respiration of the over-acting but sound lung, and consider as healthy the soft and deficient vesicular murmur of the diseased side, and indeed there is abundant excuse for his so doing. Again, disease may be ascribed to the apex of the lung from the existence of bronchial breathing, whereas the primary disease is really at the base. Therefore, the whole of the chest must be auscultated: above and below the clavicles; the supra-spinous fossæ behind; the intervertebral grooves and bases; and we must be on the alert to detect even slight differences between the two sides.

The examination of the abdomen is chiefly conducted by means of palpation—the existence of enlargement of the spleen or liver is ascertained in this way; so also that of other abdominal tumours. But there are other points of detail which are well worth attention. In the first place, it is worse than useless to put a young child on its back and uncover it for examination. It will kick and scream, put its muscles into a state of rigidity, and nothing can be made out. One must often be content with an examination while the child is sitting up and by placing the hand beneath its clothes. It is equally useless to poke the abdominal wall with the tips of two or three fingers, as the muscles are provoked to action by this means also, and nothing can be felt behind them. Palpation can only be properly conducted by placing the warm palm perfectly flat and open upon the abdominal wall and by then making pressure at any part that requires examination with the flat of one or two fingers. Any abnormal tumours can in this way be readily detected and their edges defined—be they hepatic or splenic or what not. Splenic and renal tumours are best examined by one hand being placed flat beneath the body supporting the flank, while the other, flat and open as before, makes pres-

sure from above upon the abdominal wall supported by the hand behind.

The *ejecta* of children should all be examined, whether they be vomited or passed from the bladder or rectum.

The **sleep** of a child should be watched if opportunity offer. A child sleeps quite calmly when in health, and for a long time at a stretch when the first few months have passed over and the necessity of frequent suckling has gone by, but it is quickly disturbed in ill-health of all kinds. Slight attacks of fever, gastro-intestinal derangements, dentition, brain disease, &c., all make the sleep uneasy, although not much differentiation of disease can be accomplished by observations of this kind. The manner of deglutition is another feature which often conveys an indication of disease. In any interference with the freedom of respiration a child will take a few snatches of food and then turn away, and splutter, or cough, or cry. If children refuse food without any definite reason, the mouth and throat should always receive a careful examination: stomatitis, tonsillitis, and even more serious troubles, such as post-pharyngeal abscess, may otherwise go unrecognized.

The **temperature** of children is often puzzling. It is much more unstable than in adults, and abnormal heat is more liable to escape notice. I suppose this is equivalent to saying that it causes less definite symptoms of illness. Temperatures of  $102^{\circ}$  and  $103^{\circ}$  are frequently overlooked in infants, the child being said to be simply out of sorts, and fretful. So also in children of two or three years old. The temperature of some children is disturbed much more readily than that of others. Some there are who, in the first six or eight years of life, whenever they eat anything which is at all indigestible, and often at other times with no very definite cause, suffer from an acute febrile disturbance, with cough and foul tongue. A mild aperient stops the whole thing. Others again

have sharp fever with a slight sore throat. A number of children have a simple continued fever of hectic type—viz., normal in the morning and up at night—which puzzles us by the absence of all other symptoms, and typhoid fever and tuberculosis haunt the doctor. I will emphasize some of these remarks by a note of a case which will give the student an idea of some of the difficulties as regards temperature which are every-day realities in practice. A child of six years was taken suddenly ill, his symptoms being slight sore throat, a croupy cough, high temperature, and rapid pulse. His cough and sore throat gave ground for anxiety that an attack of diphtheria might be impending; but he persistently complained of pain in the epigastrium, and this, with a short catchy respiration, suggested the possibility of some diaphragmatic trouble. His mother, many years before, had had rheumatic fever, and a careful examination of the child's heart revealed an undoubted systolic prolongation of the first sound about the base, which was compatible with the existence of an early pericarditis, but hardly less so with the long and thick first sound which is one of the common accompaniments of sharp fever. The epigastric pain and peculiar breathing, with the altered heart-sound, and the family history, pointed to the possibility of the onset of acute pericarditis and rheumatism, while the sore throat and cough would also fit in with this presentation of the symptoms. On the other hand, the child was in no distress, nor did he appear to be seriously ill. He had a bright eye, a flushed cheek, dry red lips, a pungently hot skin, and a frequent short dry cough, at least as suggestive of pleurisy or pneumonia, and, with this idea in mind, there were some slight indications in diminished resonance at the left apex, and some questionable, because distant, bronchial breathing about the root of the lung, that acute pneumonia might have set in. Lastly, at any rate in our purview, the children of this family were markedly excitable or neurotic.

Such children, from inexplicable reasons, are liable to sudden sharp febrile attacks, in which cough and rapidity of pulse are prominent symptoms, and which closely simulate the onset of acute thoracic disease. The problem speedily solved itself, for, on the third morning, an aperient having been given meanwhile, and some alkaline draught, the fever had subsided, and the boy was practically well.

**Treatment.**—I had purposed to devote a chapter to special points in the treatment of children, but, thinking the matter over, the necessity, nay even the wisdom, of so doing may be doubted. For after all the *dosage* for children, the one great dread of students, is a matter which, if stated with precision in a posological table, is never handy for reference, and is hardly reliable if it be. With one or two exceptions every one must make his own table in his own memory, and must feel his way. Herein is one of the advantages of experience, which can hardly be gained in any other manner. Opium has been a great bugbear in this respect. All powerful drugs must naturally be given with caution to children, but opium is perhaps the only one which requires excessive precaution. It must be given to infants in infinitesimal proportions, and there are some practitioners who evade its use at this time of life as much as possible. Still, for example, combined with castor oil, it is a useful drug in bad cases of flatulent colic; in pleurisy also it is of great value. Perhaps one drop to a two-ounce mixture, of which a drachm may be taken, is an average dose in the first six weeks of life. This quantity may have to be lessened, but it will certainly in many cases be necessary to increase it, and after the first two or three months the extreme susceptibility to the drug disappears, and half a drop may then be given for a dose. At two or three years old two-grain doses of Dover's powder may be given, when requisite, without fear.

Bromide of potassium, a most valuable remedy in many of the diseases of children, must be given to

infants with watchfulness. It sometimes, even in small doses, produces severe local inflammation of the skin and localized patches of soft wart-like growths (chapter *xlvi*). This is, however, of infrequent occurrence, and cannot be avoided when, as is sometimes the case, the idiosyncrasy is so pronounced that three or four grains suffice to produce the eruption; but, for the reason that there is a risk, the drug should not be continued for any length of time except under close supervision.

Belladonna and arsenic are drugs of which children are very tolerant, particularly of belladonna. A child four or five years old will generally take fifteen to twenty drops of tincture of belladonna without any inconvenience whatever. And when it is necessary to give arsenic, usually in children six years and upwards, a dose of seven drops of the liquor arsenicalis may be given at the onset three times a day, and a considerable increase on this be attained if necessary. But children do not often require a very energetic treatment with drugs, and probably he will be the best practitioner who allows Nature to make for cure without heroic measures. Proper feeding ranks first in all treatment in early life.

Alcohol is a drug of which, perhaps, in the present day, I may be allowed to say that it is of frequent and great use. It is not to be given generally or indiscriminately. But in cases of broncho-pneumonia, in severe febrile conditions, or after measles, diphtheria, and whooping-cough, when there is much exhaustion, it often seems to do good; and I should say the same of its use in the collapsed condition met with in infants in severe chest or abdominal disease. In many of these cases, however, it is better to make trial first of small doses (two or three drops) of sal volatile frequently repeated and given with food, a remedy which I agree with Dr. Lewis Marshall in thinking is quite equal, if not superior, to alcohol in many cases. As regards the administration of alcohol, there are not a few parents

who make objection if brandy or wine be ordered, but this difficulty may be readily solved by prescribing tincture of cardamoms or rectified spirit.

It is not unnecessary to add that all drugs should be made as palatable as possible. Castor oil and Gregory may be very good remedies, but, except to babies, they are mostly disgusting, and there are now at hand numberless substitutes and methods of disguising nasty remedies which should be studied. Some may be put into lozenges, some into gelatine lamels or small pills, some into syrups, some can be mixed into a palatable emulsion, and so on.

In conclusion, I must allude to baths, because their sphere of usefulness as a therapeutic agent is a large one. It would probably be difficult to enumerate the variety of diseases in which a bath is useful. As a general rule, when a state of pyrexia is recognized, the child is likely to be smothered to keep it warm. For the same reason the linen which is not actually soiled by the excreta is not changed for fear of chill. But children of all ages perspire freely, and in the course of a few hours will get exceedingly uncomfortable under these circumstances, fretting and becoming restless, whilst the mother worries at the unusual wakefulness. Put the child into a warm bath for a few minutes, and, with fresh linen and a comfortable cot, it will probably soon be at rest. Then, too, in most states of fever, sponging is of value—warm or tepid or cold according to the necessities of the case—and a bath, even a warm bath, will reduce the temperature if it be very high. Tepid or cold baths may be administered to children in high fever, if requisite, but, if cold, the bath must be of short duration. A fall of temperature is set going by the immediate shock, not necessarily by prolonged immersion, and the latter is liable to induce a state of collapse and exhaustion such as is not often seen in adults.

For this reason I seldom make use of a cold bath; and never without anxiety. I prefer to exhaust the

less severe measures first, such as those mentioned, or the continuous application of ice to the head, or an ice pack to the surface of chest and abdomen.

The tender skin of a child should always be a matter of attention. Poultices and hot bottles easily scald, and bandages are very liable to cut or excoriate if not carefully applied and frequently readjusted. Poultices are in frequent use for cases of thoracic and abdominal disease. They should never be so hot as to be in any degree painful. But I discard them as much as possible. They soon become cold, hard, and uncomfortable, and they are often heavy. A warm fomentation by means of spongio-piline, well covered in by cotton wool, is in every way preferable, at any rate for acute diseases of the thorax, and for it a jacket of cotton wool may be substituted later on.

## CHAPTER I.

### DENTITION.

THE milk teeth are cut in the following order:—The two lower central incisors from the seventh to the ninth month, often later and sometimes earlier. After a lapse of five or six weeks come the two upper central incisors; next come the two lower lateral incisors, followed by the upper lateral incisors. After an interval, the four front molars appear, followed again by the four canines, and last of all by the four posterior molars, the whole set being cut by about the end of the second year. But it must not be supposed that there is any strict time-keeping in the appearance of the teeth, for, although there is a pretty definite order of occurrence, the lower central incisors may appear early or late, and the others may follow, sometimes several at once, sometimes with long intervals between them. It often happens that the four central incisors are cut, an interval follows, and then with steady progress come all the rest save the last four molars, the appearance of which may even in healthy children be deferred for three or four months over the average age of two years.

Dentition is usually held to be the cause of many ailments, but to what extent it is really so is doubtful. The time of dentition is one of transition. A uniform and bland diet is being changed for one of greater variety, and the febrile attacks, diarrhoea, and vomiting which are so rife at this time are more satisfactorily explained by indigestibility of food than by any occult influence of tooth-cutting. This much, however, may be allowed: that the growth of a child is one of stages; that there are periods during which unusual progress is

made; and that the period of dentition is one of these. Increased activity of all the physiological processes at work necessarily implies greater risks of friction between one organ and another, or even of a regular break down. Excessive energy, if not properly regulated or adequately expended, is liable to lead to an explosion of some sort or another. Some such general hypothesis as this must hold good for the instability of working which is common in all the viscera during the first dentition, and to a less extent during the second dentition, and in the years which usher in puberty. In this general sense the time of dentition is no doubt a time of peril. The mortality is high, and disorders of many kinds—convulsions, bronchitis, pneumonia, diarrhoea, &c.—each claims its victims. But this is not as a consequence of the eruption of the teeth, but as part of a general activity of growth and development, to which dentition and morbid phenomena both in a sense respond.

Still there are no doubt certain minor evils attending dentition which require at least a mention. Some children are remarkably susceptible to "colds" under such circumstances—that is to say, as each tooth comes through the gums the child suffers from coryza; the eyes run, the nose also; there is much sneezing, and perhaps a little cough. There may be at the same time pyrexia, and the bowels become irregular—now confined and now relaxed. Some get a sharp attack of fever (temp.  $103^{\circ}$  or  $104^{\circ}$ ), the lips and tongue becoming a bright red, the child being restless and fretful. Others have diarrhoea at these times; others, again, convulsions, and a still larger number have threatenings of them in the form of wildness and excitement of manner, more irregularity of muscular movement than usual, temporary contracture of feet and hands or strabismus. Most children have an excessive dribbling of saliva, are frequently biting anything they can put their hands to, and there may be a little superficial ulceration of the mouth. In-

digestion is common. The child suffers from heart-burn and offensive eructations, while lichen urticatus (strophulus) appears upon the skin. Convulsions are not a common ailment of dentition, and it is the opinion of West, Hensch, and many other observers that they are but seldom seen except in association with rickets.

The dribbling of saliva is a most interesting phenomenon—whether it is due to the irritation of the teeth, or to the physiological activity of growth to which I have already alluded. And I may here add, as a hint derived from my friend and colleague, Mr. H. Moon, dental surgeon at Guy's, that there are divers peculiarities in the character of the saliva in various digestive and other ailments. This we know in the dryness of mouth which occurs in some diseases; the acidity which occurs in others. And Mr. Moon tells of a peculiar viscosity of the secretion which is pre-eminently detrimental to the dental enamel.

In the treatment of these varied conditions, to be forewarned is to be forearmed, and the timely management of slight disorders in all probability arrests more serious evils. To control the excess and irregularity of muscular movement is probably to avert the development of a pronounced convulsion. The "cold" neglected becomes a bronchitis or pneumonia; the indigestion leads to vomiting and diarrhoea; the slight feverishness to severe pyrexia. The treatment may seem somewhat empirical, nevertheless simple means suffice in most cases; contractions of feet and hands and other threatenings of convulsion will often speedily subside on the action of some mild aperient—a small dose of calomel or a couple of grains of hydrarg. c. cretâ with a similar dose of pulvis rhei. The coryza is suitably treated by a little ammonia and ipecacuanha. The fever by a drop of tincture of aconite or a little salicylate of soda with acetate of ammonia (F. 2), and so on.

If the pyrexia be severe, and there be any threaten-

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If the pyrexia be severe, and there be any threaten-

ing of convulsions, and a tooth seem to be worrying the gum close beneath the surface, there can be no harm in using the gum lancet to relieve the upward pressure; at the same time bromide of potassium and some saline, such as citrate of potash, should be given internally either as a nocturnal draught or twice or three times a day. The subject of dental decay, although one of interest and concern to all who see much of the diseases of children, is hardly within the province of this book. Moreover, beyond confirming the general observation that decay takes place much more rapidly in some families than in others, I have not anything positive to contribute to the subject. But I may make this practical note from the storehouse of the experience of my colleague, Mr. Moon, that young children are often inveterate food bolters, on account of toothache; and this much from my own knowledge, that stopping is now practised by dental surgeons from four years of age upwards, thus allowing of the more healthy development of the permanent teeth, and in no small measure preventing some of the many dietetic ailments of early life.

The second dentition commences about the seventh year with the eruption of the first molars; next in order come the central and lateral incisors, the first bicuspid, the second bicuspid, the canines and second molars, at intervals of a year or so.

Some have thought that this also is a time of hazard to the child, but it will be admitted by all that, whatever may be the precise value of the eruption of the milk teeth as a factor in the production of disease, the appearance of the permanent teeth is only chargeable, if at all, in the most indirect manner. The more obvious reasons that are present in the former case are absent now: there is no change of diet, no special development commencing now, at all comparable with that which takes place during the first dentition. It is a time when education begins in earnest, when growth in most cases is proceeding

rapidly, and therefore a time when there are many risks, though probably in most cases independent of dentition. Dr. Gowers, from an analysis of a large number of cases of epilepsy, does indeed show that the numbers rise at seven years of age—the commencement of the second dentition—and fall again in the next few years preparatory to a further rise at puberty. Still it seems not unlikely that this should be referred to the extra calls which, at this time of life, are made in any case upon brain and body, rather than to the process of dentition; and apart from epilepsy, chorea, and neurotic diseases generally, there are none which attach themselves peculiarly to this period.

## CHAPTER II.

## DIET OF CHILDREN IN HEALTH.

THE student often starts in practice with such limited notions on the subject of diet that many a mother knows more of what is actually required than he does. True, indeed, the fundamental rule upon which all practice is founded, that the mother's milk, and that only, should form the infant's food for the first few months of life, is a choice stock in trade, but we soon find out how very limited and often at fault is this statement of the matter. Many mothers cannot, many mothers will not, nurse their infants at all, and many more are so situated through the calls of society or of employment, that this, the chief of maternal duties, can only be fulfilled in part. Thus it early becomes a question for all of us, What is to be done under each or any of the circumstances which this enforced neglect entails?

It will be well to attend to the following suggestions:—

The infant should be fed from its mother's breast, if not for the full period of lactation, at least as long as possible, and if not entirely, then partially—that is to say, the breast should supply at least one or two meals daily.

If the mother be able to suckle it entirely, no other food is to be given to the infant. It is to be put to the breast every two hours for the first five or six weeks, between the hours of six A.M. and ten P.M., and afterwards the interval between the meals is to be lengthened gradually, till a three-hour interval is reached. It is said that a healthy child will sleep all through the night hours, but in the first five or six

weeks of life it will require food several times during the night. Even when infants are some months old, one meal in the middle of the night may be necessary, and to this there is but little objection. The digestion of a healthy infant is rapid, and, while food should never be given too often, any lengthened fast is equally to be avoided.

The interval between meals is to be strictly enforced for all infants that are healthy. Children are creatures of habit, and soon learn their proper meal-times. They will often, indeed, begin to cry punctually at the time. But they are easily educated also in faulty habits. It is the custom of many mothers to pacify crying at all times with the breast or the bottle—and a more pernicious practice it is impossible to conceive. The more the crying the more the feeding, and the more the feeding the more the infant cries, and what between crying and suckling the day and night are spent in misery. These are the cases which form the great majority of the thin, pining, pitiable mites who are brought to a hospital for “consumption of the bowels,” but with bad feeding only to blame. And what wonder; if grown-up persons were to be always eating, who among us would not be dyspeptic, and who would not be quite as miserable if less demonstrative than the infant! Now let it be remembered that there are many children who, in the first week or two of life, when the stomach is as it were unfolding to its duties, cry a good deal. They are a source of great discomfort and pain in a household—sucking at something will almost certainly quiet them, and other methods of treatment, food, doctoring, and so forth, often fail. It is very important in such cases to impress upon the mother and nurse that, if they quiet a child by this means, they are but sowing the wind to reap an inevitable whirlwind. If they bear with it for a short time, the child soon becomes accustomed to the habits enforced; it must sleep after a while, and the first lesson of its life is learned.

Whenever there is much crying, however, attention should be directed to the quality of the milk. It may be poor in quality or deficient in quantity, and the child cries because its stomach is full of flatus. Sometimes, again, it is over-plentiful, and the child, taking it too greedily, is troubled in consequence with colic.

If it be necessary to make any addition to the breast milk, good cows' milk \* may be tried first, and it is to be diluted with an equal part of water or of lime-water, slightly sweetened with sugar of milk or lump sugar, six tablespoonfuls to be given at a meal. The breast may be given night and morning, and the milk and lime-water in the meantime, or the two may be made to alternate. The milk may be boiled in hot weather, or if it disagree; and to one or two of the meals in the day, sometimes to all of them, a good teaspoonful of cream should be added. The mixture of milk and lime-water is not by any means always suitable. In some cases where the milk is still too much for the child, and is most of it vomited in large curds, it may be further diluted. In others, where it appears to lead to flatulence and abdominal pain, mixture with thin barley-water will be found to agree better. Barley-water has also the advantage of acting as a gentle laxative—a very valuable property, inasmuch as many children fed upon cows' milk and water, or cows' milk and lime-water, are much troubled with constipation, the motions being very large, lumpy, and hard. Barley-water acts most beneficially in many such cases, but its use is to be watched, as infants are very sensitive to the administration of starch in any form, and I have repeatedly known an eczematous eruption to appear upon the buttocks after only one or two meals of milk treated in this way. In very young infants the mixture of milk and water, or milk and lime-water, may be attended with vomiting or with

\* Cows' milk should be faintly acid or neutral; of sp. gr. 1026 to 1030; and should contain an amount of cream which is variously stated by different writers to be from 5 to 10, or even 14 per cent.

abdominal pain. In such cases the milk must be diluted till it forms only a third part of the whole, equal parts of milk, water, and lime-water being given, sweetened as before with milk sugar. But there are many cases where this fails to secure health and comfort. The child is griped with pain after each meal, and remains thin, while the motions are still pale and lumpy, often containing undigested curd. It is probable that, under these circumstances, the curd of the cows' milk, which is larger and firmer than that of the mother's milk, is the element at fault, and barley-water will often remedy this. By mixing it with the milk the casein curdles in a state of more minute subdivision, and more closely resembles the thin, small flocculent curd of human milk. Meigs and Pepper advise a little arrowroot in addition. Thin gelatine jelly, a teaspoonful to half a pint of milk and water, may be mixed with the milk instead of the barley-water, for the same purpose. Some of the Infant's Foods may be used for the same purpose also. These are for the most part combinations of farinaceous food in which the starch has been converted into dextrine and grape sugar by the mode of preparation. In this state they are easy of digestion, and may therefore, with due care, be used to thicken the milk. Starch which has undergone no such changes is unsuitable, because in the first three months of life the salivary and pancreatic juices are wanting, and consequently there are no facilities for its digestion. Mellin's food, Liebig's infant food,\* Nestlé's food, Savory & Moore's food, and others are all useful in certain cases. Sometimes one will suit, sometimes another. The proper one for a particular case must always be somewhat a matter of experiment. A teaspoonful is added to each meal. Nestlé's food requires boiling. Condensed milk of some good brand is often useful at this period of life, and many infants thrive well upon it. It possesses some advan-

\* See footnote, p. 28.

tages, chief of which is its freedom from any tendency to turn sour. Care must be taken not to give too much of it. A small teaspoonful to a teacupful of water is quite sufficient for a meal, and after two or three months it should in most cases be replaced by cows' milk or combined with some infants' food.

As regards quantity, it has been estimated that the mother supplies to her baby a pint of milk in the twenty-four hours in the first week or two, and that this quantity gradually increases until in the later months of lactation about three pints is reached. Some such quantity therefore distributed over regular intervals should be the daily allowance to a child from birth onwards. But infants vary much in respect of the quantity which they will digest. Some are habitually small feeders. Therefore, provided that the child grows, that its flesh is firm, and it is happy, there should be no absolute insistence upon a fixed minimum.\*

In some cases, notwithstanding all the care and skill that are lavished upon them, cows' milk cannot be digested. Till lately goats' milk or asses' milk has been resorted to as most closely approximating to human milk.† They may be given either undiluted, or diluted—as in the case of cows' milk—with water or lime-water, or even with barley-water. Whey, with

\* At the end of the Appendix of Formulæ will be found further information on these matters, Dr. Lewis Marshall having suggested to me that more precise details would be useful to the student.

† Goats' milk is richer in nitrogenous matter, asses' milk considerably poorer, than human milk. The mean composition of the milk of various animals is thus given by Pavy from Payen:

|                                       | Woman. | Cow.  | Goat. | Sheep. | Ass.  | Mare. |
|---------------------------------------|--------|-------|-------|--------|-------|-------|
| Nitrogenous and insoluble salts ..... | 3'35   | 4'55  | 4'50  | 8'00   | 1'70  | 1'62  |
| Butter .....                          | 3'34   | 3'70  | 4'10  | 6'50   | 1'40  | 0'20  |
| Lactine and soluble salts .....       | 3'77   | 5'35  | 5'80  | 4'50   | 6'40  | 8'75  |
| Water .....                           | 89'54  | 86'40 | 85'60 | 82'00  | 90'50 | 89'33 |
|                                       | 100'   | 100'  | 100'  | 100'   | 100'  | 100'  |

a tablespoonful of cream added to each meal, is another very useful food when milk disagrees; and of late two other valuable additions have been made to an infant's dietary in peptonized milk, and artificial human milk. The former is very easily made by using one of Savory & Moore's peptonizing pellets; the latter can be procured of the Aylesbury Dairy Company in London or the immediate suburbs, when it is rather expensive, or it can be made with but a moderate amount of trouble. The directions for making these are given in the Appendix of Formulæ. One other food still requires mention, that which goes by the name of "strippings." All infants digest cream with facility; the curd, on the other hand, is an obstacle with all. Strippings, obtained by remilking the cow after its usual supply is withdrawn, is rich in cream and poor in curd,\* and consequently has much to recommend it as an infant's food. Dr. Eustace Smith commends it highly, diluted with water or barley-water, in cases where other combinations are assimilated with difficulty.

As a last resource a wet-nurse must be obtained. In selecting her, attention should of course be paid to her appearance and state of health. Inquiries should be made for any previous symptoms indicative of syphilis; the skin and throat should be examined for scars, &c.; the chest, to make sure of the absence of phthisis. It may perhaps be advisable that, where there is a choice, a nurse should be chosen of similar complexion to the infant, and whose child is about the same age as that to be nursed. The state of the breasts must be examined, their distension, the state of the nipples, and the quantity and quality of the milk. It is well, too, to be prepared with a second nurse, as the first selection may after all fail in some way or another. Infants, as well as their parents, have unaccountable likes and dislikes.

\* See Pavy on "Food and Dietetics," second edition, p. 186.

While upon this subject, however, it may be as well to say that in my opinion—so long as we have to do with children who have not persistently wasted for some time—careful artificial feeding will seldom fail. This is the more to be insisted upon both as a hope, and as a motive for perseverance, since wet-nurses are in many families—perhaps in most—an impossibility. They are difficult to obtain just when they are required; they are a considerable expense; they introduce a sudden and dominant influence into many a household, for which it finds itself unprepared—not to mention the moral considerations, which are too often obtrusive—so that it generally comes to be a question of what artificial food is the best.

Suppose now that by the aid of one or more of these suggestions the infant has safely reached the age of eight months, the time arrives for some addition to its diet. In the case of a child fed entirely upon the breast milk, two meals a day of cows' milk should first be introduced, a teacupful at each meal. If any discomfort be experienced after them, it may generally be remedied by boiling the milk or by the addition of a third or fourth part of lime-water. After three or four weeks one of the many infants' foods is to be added, first to *one*, and then to two meals daily. Nestlé's food, Liebig's,\* and Mellin's agree well with most children—a teaspoonful is to be well mixed with a teacupful of hot milk. Nestlé's food should be boiled

\* The following directions are given by Dr. Pavy for the home preparation of Liebig's food:—Take half an ounce of wheat flour, half an ounce of malt flour, and seven and a quarter grains of the crystallized bicarbonate of potash, and after well mixing them add one ounce of water, and lastly, five ounces of cows' milk. Warm the mixture, continually stirring, over a very slow fire till it becomes thick. Then remove the vessel from the fire, stir again for five minutes, put it back on the fire, take it off as soon as it gets thick, and finally let it boil well. It is necessary that the food should form a thin and sweet liquid previous to its final boiling. Strain before use to separate the fragments of husks. Barley malt is to be used, and a common coffee-mill will grind it into flour, which is to be cleared from the husk by a coarse sieve.—Pavy on "Food and Dietetics," second edition, p. 192.

with the milk. The food may be varied by, or alternate with, Chapman's entire wheaten flour. This form is more suitable than white bakers' flour, because it contains the pollard or outer part of the grain of wheat, and this is rich in nitrogenous matter, fat, and salts, and also in the cerealine, which exercises a diastatic action upon the starch, turning it into sugar.

The finest dressed white flour contains less nitrogen and more starch, and is therefore less wholesome, for reasons previously stated. The entire flour needs prolonged boiling for its preparation in order to break up its starch and convert it into dextrine or grape sugar. This may be done by putting it into a basin, tying it over with a cloth, and then immersing the whole in a saucepan of boiling water for some hours; or, by tying it up tightly in a pudding-cloth and boiling. Eustace Smith orders a pound to be heated thus for ten hours, and then removed, the outer soft part to be cut away, and the inner hard part grated and used as meal—a teaspoonful at a time, well mixed with cold milk, to which a quarter of a pint of hot milk is added before serving.

Should the child have already taken to artificial feeding, according to the rules laid down, all that will be necessary at seven or eight months will be to increase the quantity of milk and food which has already by experience been found to suit the particular case.

After nine months old, further variety may be introduced. A cup of beef-tea; or mutton, chicken, or veal broth; or the yolk of an egg should be given occasionally. All these things are, however, only accessories to the main article of diet—*i.e.*, good milk, of which a healthy child will generally consume a pint and a half or two pints daily. At this time of life there should be five meals during the day, thus: At eight A.M., a teacupful of warm milk thickened with a teaspoonful of Nestlé's food, or entire flour. At eleven A.M., a breakfast-cupful of warm milk, or the yolk of an egg well beaten up in a teacupful of milk,

or a teacupful of veal broth or beef-tea. At two P.M., a breakfast-cupful of warm milk. At five P.M., a teacupful of milk with a teaspoonful of Nestlé's food or baked flour. At eleven P.M., a teacupful of warm milk. If the child sleeps through the night, well and good. But there is no objection to a night meal of a teacupful of milk about three A.M., if it be wakeful.

At a year old the breakfast may consist of a teacupful of milk, a slice of bread and butter, and the yolk of an egg lightly boiled. At eleven, a teacupful of milk and a rusk. At two, a teacupful of broth or beef-tea with a little bread. And at five, a breakfast-cupful of milk, with bread and butter. The meals may be varied by substituting a teaspoonful of oatmeal, well boiled, in a breakfast-cupful of milk; or bread and milk for the egg at breakfast; and a tablespoonful of custard pudding may be added to the dinner. The child may next have a little well-mashed potato, or well-cooked cauliflower or broccoli added to its dinner—a tablespoonful well soaked in gravy.

After eighteen months, or when the double teeth begin to appear, it may begin with meat, and the meal-times may be somewhat altered. At eight A.M. breakfast, a breakfast-cupful of bread and milk or milk with thin bread and butter and the yolk of an egg lightly boiled. Thin porridge may be substituted on some days.

A drink of milk with a rusk may be given if necessary during the morning. At half-past one dinner, a tablespoonful of pounded mutton, with some mashed potato and gravy, or a cup of beef-tea in which some vegetable has been stewed, and a little toast and water to drink. At five, a breakfast-cupful of milk, thin bread and butter, and stale sponge-cake. No other meal will be necessary, but a little milk may be at hand in case of need.

After two years, meat may be given daily, and fine mincing may be substituted for pounding. Light farinaceous pudding may also constitute part of the

daily mid-day meal; the other meals remaining as before.

I have often been asked, in the case of older children, to draw out a diet table, but it is quite unnecessary. All children should have plenty of milk, and bread and butter for breakfast and tea; and roast or boiled meat with gravy and light vegetables for dinner, with some light farinaceous and egg pudding well sweetened. With regard to quantity, the only rule I would enforce is this—let some reliable person be always present at meal-times to see that the food is taken leisurely, and properly masticated, and if this is done I believe that very few children will take too much. Some children require more than others, but, if the meals are not hurried, the healthy appetite is satisfied at the proper time and is a far better indicator than any arbitrary rule can ever be. Food-bolters are the children that get into trouble from over-feeding. They steal a march upon their stomachs, and before they feel satisfied they have taken too much. For such, the old adage to leave off with an appetite is needful, but it is not the teaching of physiology. In the same way with children's likes and dislikes; if the rule given above be observed, what a healthy child likes it will usually digest, what it dislikes will disagree. I am of course assuming that its experience lies well within the range of wholesome articles of diet. Take the case of fats and sugar, for instance. Nearly all children dislike fat, and are equally fond of sugar. It is an unquestionable fact that rich articles of food easily upset them; what, therefore, can be the sense of insisting on children eating fat? The liking for it comes at the proper time. On the other hand, children are fond of sugar, and make up with it where they fail in fat, and there is no evidence whatever that sugar is harmful when taken at proper times. To take sweets at all hours of the day at the expense of the proper meals is one thing, and to be strictly forbidden; the moderate con-

sumption of saccharine material at meal-times, whether it be in the form of sugar or good wholesome preserve, is quite another thing, and as certainly to be recommended. It is often stated that sugar is bad for the teeth. But I have my friend Mr. Moon's experienced assent to this way of putting the matter, which, after all, is only common-sense physiology—that sugar is only harmful in proportion as it leads to indigestion, and to consequent disorder of the salivary and buccal secretions. In other words, it is the abuse, not the use, of saccharine matter which is to be deprecated.

No doubt there are some children the functions of whose stomachs seem to be topsy-turvy. Everything they ought to like disagrees with them, and they live—I will not say thrive—upon most unwholesome diet. Some will be almost entirely carnivorous, some cannot take milk, others resent farinaceous puddings, and so on. But it will generally be found that, where this is so, the early education of the stomach has been at fault, and patient correction will bring it round. Mothers and nurses will say a child cannot take this and that, because they have administered the thing improperly. But if the medical man insists on a return to such diet under strictly detailed conditions—nay, sometimes it may be necessary to make it one's business to see a child at its meals, and what it is eating—no difficulty whatever will be experienced in its digestion.

One or two points concerning the administration of food to infants may be alluded to here, as akin to the question of diet, and upon which the success of all diets depends.

In the first place, it is necessary to insist upon the observation of the most scrupulous cleanliness. No one would believe, without actual experience, how difficult it is to keep a feeding-bottle and its tube sweet. But so difficult is it, even with the greatest care and the closest supervision, that it is advisable to simplify the apparatus as much as possible. For this reason I discard all bottles except the old-fashioned

slipper form, of which an improvement has of late been introduced which is free from any disadvantage.\* With this bottle, the meal being over, the nickel cap and nipple are removed, the bottle well washed in warm water, and the three parts are allowed to stand in a weak solution of salicylate of soda gr. iv ad 3j of water,† or in water to which a good pinch of borax has been added. Bottles with tubes must be replaced by new ones directly there is anything unpleasant about them when placed close to the nose—a test which is to be frequently applied by the doctor himself. Small brushes are usually sold with the bottles for cleansing purposes, but as regards the tubes it is safer to proceed upon the assumption that they cannot be thoroughly cleansed by this or any other means, and to provide new ones at frequent intervals. Similarly all joints and valves are to be eschewed; they fulfil, no doubt, their immediate purpose by preventing reflux of the milk, and so keeping the tube full, but they are of very little use at any time, and even the simplest of them, made as they are of metal, are impossible to clean, and emit an unpleasant odour after very little use. The best feeding-bottle of this kind is one invented by Mr. Day, of the Royal Hospital for Children and Women, Waterloo Road; in it all joints are done away with, and a small vent is made in the bottle to secure ease of suction. This bottle is as near perfection as any such contrivances can be.

No child should be left to take its meal as it wills. Some infants are inveterate bolters, and will consume a bottle of milk in three minutes which should take them at least ten. The rate of supply must be controlled by the nurse, otherwise vomiting and colic will result.

\* The "Tropical" Boatshape Feeder with nickel screw cap to allow of cleaning—manufactured by Thompson, Millard & Co., Curtain Road, E.C.

† A valuable suggestion made by Dr. Lewis Marshall, of Nottingham.

Of food warming and food preservation it may suffice to say that of all food warmers Grout's is the simplest and the best.\* It consists of a well sunk in a cubical hot-water tin, and in it food or water can be kept at a comfortable heat all night, without any supervision whatever. But like all apparatus of this kind it is a good *incubator*, and food placed in it may become sour. The best plan to adopt, perhaps, is to keep the water hot by this means, and to add the water to the milk at the time of its consumption.

It may be sometimes necessary to preserve milk for some hours for a journey, &c. This is best done by filling soda-water bottles with boiling milk, and immediately corking them tightly, or by taking condensed milk, as Dr. Starr† recommends, and diluting it by hot water, which can easily be obtained, as occasion requires.

\* It can be obtained from Savory & Moore. † American edition.

### CHAPTER III.

#### DIET DISEASES: ATROPHY—FLATULENCE—COLIC—CONSTIPATION.

THE consideration of the diet fit for a healthy infant up to the period when it can, with certain limitations, take food in common with its parents, leads on naturally to the consideration of those diseases which are dependent upon imperfections in the diet, whether of quantity or quality, and to the treatment which is most efficacious for their cure.

These diseases are both numerous and important, whilst their heterogeneity involves us in some difficulties of arrangement. Perhaps the best plan that can be adopted is to take them in the order in which they seem to arrange themselves: 1. Simple wasting; 2. Diseases of the digestive tract, including colic, flatulence, constipation, diarrhoea, vomiting, indigestion, or gastric fever, and stomatitis. There are other diseases which are also diet diseases, such as rickets and certain of the diseases of the skin; but it is more convenient to consider these at a later period.

**Simple wasting or atrophy** is due to insufficient or improper food. If the food is bad—and by that I mean indigestible—the wasting is generally associated with symptoms of intestinal disorder, which may be best treated under the head of diarrhoea, colic, and so on. Naturally enough, the two conditions, insufficiency and indigestibility, are commonly associated in practice.

Nevertheless, it is well to remember that, amongst the number of infants who require dietetic treatment, the total number of cases due to simple starvation is not inconsiderable. The diagnosis must, for the most

part, be arrived at from the absence of symptoms indicative of any local disease. The infant does not get on, or gradually loses the plumpness it has gained, becomes pale and thin, and is always crying. Still, it fails to attract notice by any definite signs of illness; on the contrary, it is not unusually bright-looking and intelligent, it is easily attracted and pacified for the moment, doubtless solaced with the hope of a coming meal which it knows will bring freedom from its pangs. These children are pale, sharp-featured, the fontanelle depressed, the arms and legs and buttocks thin, the muscles flabby, and the skin cool and moist. They are always crying, the cry being noisy and passionate, and in the best marked instances alternating with vigorous sucking at anything within reach, sometimes at the thumbs till they are raw. The meals are taken ravenously, and as soon as they are finished, or in the intervals of the sucking, crying is repeated. In very young infants the child dozes at its meals, from the absence of that pleasurable stimulus which should be conveyed by suitable food. In the worst cases, when exhaustion is extreme, there may be persistent drowsiness or even stupor, the eyes being sunken. The child may be restless or whine feebly when it is moved; the abdomen is generally soft, but dough-like; and the intestinal coils and peristaltic action are visible through the thin abdominal wall. There may be slight diarrhoea. The viscera must be carefully examined in every case, and should show no sign of disease. But inasmuch as even very young infants are not exempt from insidious complaints such as empyema, or broncho-pneumonia, and wasting may be their only noticeable sign, the diagnosis cannot be reliable until a thorough examination has been made. To take one example out of many: a child of eight months old was brought to the Evelina Hospital for wasting. It had been fed upon bread and milk since the age of eight weeks. No wonder it had always been thin and lately had got thinner! The

bowels acted regularly, and there was nothing about the face to indicate local disease, and without examination the case might readily have passed for one of atrophy from bad feeding. It lay in its mother's lap in a passive condition, and the mother had in fact become concerned because the wasting had now reached an extent that sitting up seemed a trouble to it. An examination of the chest revealed the existence of extensive broncho-pneumonia, which had not even been suspected. The bases of the lungs were dull; tubular breathing and bronchophony extended up to the spine of the scapula on the one side, and on the other were audible in patches, with much bronchitic crepitation in the larger tubes.

**Treatment.**—A careful attention to the rules laid down for dieting healthy infants will in most cases prove successful. Inasmuch as the child has usually been improperly fed, it is generally advisable to give a few doses of some mild aperient, and none is better than castor oil, which, sweetened with sugar, most infants take readily. It may be given as a mixture twice or three times a day (F. 3), a mode of administration which I prefer; or as a single larger dose of half a drachm to a drachm.

Insufficient food must of course be met by increasing its quantity, but caution is necessary in doing this. The stomach of an infant that has been persistently starved for some weeks, or even months, will not tolerate an immediate return to the quantity of food which would be suitable for a child of its age under natural conditions. The increase is to be made by stages; if not, the stomach, which in early life is most punctilious in resenting any sudden departure from its recognized custom, will certainly relieve itself by vomiting. An infant which has been taking perhaps half a pint of milk in the twenty-four hours with bread, and so forth, may have half a pint of milk substituted for the bread, and the pint is to be day by day slowly increased till the proper quantity (two to

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three pints) is reached. Nor is it uncommon for such children to require an amount of dilution of the milk out of proportion to their age. Educated upon faulty principles as it has been, the stomach adheres to them with pertinacity, or becomes so irritable that even proper feeding does not seem to suit, and the child can only be saved by the most patient and attentive, even quick-witted, regulation of its diet. Use what care we may, whenever a child has continuously wasted for some weeks, the prognosis must be doubtful until it has begun to mend under the treatment adopted.

Such cases, indeed, but for the objections, often insuperable, which have already been alluded to, should always be wet-nursed. When this is not possible, artificial human milk must be made or procured; or, failing this, some one of the other foods which have been mentioned in the previous chapter. For the worst cases still further departures may be requisite. Whey, with a tablespoonful of cream added to it, will suit some; whey and barley-water, or barley-water and cream, others. Sometimes artificially digested milk, or peptonized milk as it is now called, may be necessary; sometimes a little beef juice. Any one of these may in one case or another enable the child to turn the corner, and, when this is effected, a more natural diet can be gradually resumed.

**Flatulence and Colic** are amongst the most frequent digestive disorders in infancy. They are so commonly associated that it is unnecessary to discuss their separate symptoms. Flatulent colic is recognized in most cases by its relation to meals. Soon after food a child becomes restless, kicks its legs about, begins to grunt, and then perhaps utters a piercing, or sometimes a prolonged and harsh, cry. At the same time the stomach is rigid, the face turns pale, and after a time eructations take place, and perhaps some vomiting of curd. As digestion proceeds the pain ceases. The physics of flatulence are not easy of elucidation, but

the condition is associated either with poorness or deficiency in quantity of milk on the part of the mother—when it is reasonable to suppose that it is due to emptiness of the stomach—or with indigestible food. It is frequent where cows' milk is given, and in that case is due to the formation of firm curd in the stomach, and ceases as soon as this is disposed of either by vomiting or the process of digestion. If it persists, speaking generally, it indicates that the stomach is still empty, or that the meal remains undigested. It is often associated with, and aggravated by, irregularity of the bowels; constipation being usual, with an occasional attack of diarrhœa. Where the bowels are constipated the motions are pale, lumpy, often very large and hard. They are evacuated with much straining, accompanied by a little blood, which comes from the lower end of the bowel, and is due to the abnormal consistence and size of the motion and to the straining necessary for its evacuation.

Some infants appear to be hyper-sensitive to the contact of food with the mucous membrane of the stomach and intestine, and, even though it be in all respects proper, flatulence and griping are excited. Others there are whose bowels are from the first sluggish and prone to constipation. It is by no means an uninteresting subject for study, how far such idiosyncrasies foreshadow the temperament of after-life—the nervous or phlegmatic, for example; but apart from this, it is no more than might be expected in the first few weeks or months of infant life—when the stomach and intestine are called upon to perform functions to which they have hitherto been unaccustomed, and for the performance of which they have no more than a transmitted capacity to rely upon—that the work should be done less regularly and perfectly than afterwards, when it has become stereotyped and easy by training.

And if this be the true way to regard the often recurring improprieties of function met with in infantile

disorders of the digestive system, a rational mode of treatment recommends itself spontaneously. The details as applied to any particular case may require some skill in their adaptation, and may even fail; but the principles upon which they must be based admit of the clearest insight. For example, when dependent upon the want of training, flatulence and colic are best treated by *carminatives*; in such case, stomachic stimulants, or charmers away of flatulence, possess a perfectly rational basis of action which their title does not suggest. A *stimulant* applied to the stomach when it is already struggling with a meal which it knows not how to dispose of, is not unlikely to make matters worse; unless it should provoke vomiting, which is by no means a desirable issue in such cases. The drugs which are successful in so many cases as to warrant the name *carminatives* are all impregnated with some volatile oil of strong flavour, and impart a sense of warmth to the nerve filaments to which they are applied. Afferent nerves, when employed in conducting any powerful impression, are for the most part so fully occupied as to be incapable of attending to other weaker excitors, and the stronger stimulant will at any time displace the weaker. In flatulent colic some dill, fennel, or cinnamon water is given; the attention of the nerve filaments is attracted by its diffusibility and pungency, and diverted from the food. Time is thus allowed for the gastric juice to act and for digestion to proceed. In due course the irritating matters are broken up and disposed of; and the pain ceases till the next meal. Any of the aromatic waters may be given, though perhaps the aqua anethi is in most request. A tablespoonful or more is to be put into each bottle of food, or a similar quantity—sweetened with a little powdered white sugar—may be given afterwards.

**The Flatulence of Emptiness.**—If the flatulence be due to the poorness or insufficiency of the milk—which must be ascertained by an examination of the

mother's breasts—it may be remedied by feeding the infant during the day, and putting it to the breast only night and morning; and if with this reduction there is still but a scanty meal for the child, hand-rearing must be taken to altogether.

The flatulent colic of indigestible food may be *prevented* by further dilution of the milk; by the addition of an alkali, such as lime-water or bicarbonate of soda; or by the addition of barley-water or gelatine. Those things which tend to thicken the food slightly are most successful, probably, as Dr. Eustace Smith states, by preventing the formation of large masses of curd.

When the pain is very severe the colic may be relieved by warming the feet; by a warm linseed-meal poultice to the abdomen; by twenty or thirty drops of brandy in a little warm milk and water; sometimes by a teaspoonful of aqua chloroformi. Where there is any suspicion of the retention of irritating material in the intestine some castor oil must be given. This may usually be prescribed after the formula given (F. 3), but if it be also accompanied by griping, it may be associated with a minute dose of opium, three drops of the tincture in a three-ounce mixture, a drachm to be given twice or three times a day (F. 4) to a child of nine months to a year old. If the collapse be severe, the bowels should be evacuated at once by an enema—the child being well wrapped in blankets the while. In all cases of flatulent colic it is essential to see that the child is kept warm. It is not only necessary to encase the legs and abdomen in flannel, but to see that the wraps are retained in position. It often happens that a flannel binder is put upon the abdomen and sewn on, as it is thought, securely, but it quickly slips up, and the abdomen is left quite uncovered, as may easily be proved by putting the hand under the clothes of half a dozen babies consecutively. Again, the feet are wrapped quite properly in worsted socks, and are then allowed to get wet with urine; so that, whilst having the semblance of

being adequately cared for, appearances are belied by facts. The clothing of infants is adapted for the most part to the exigencies of urination, &c. It is so constantly wet, that anything elaborate for the loins and legs is less convenient than the time-honoured napkin. Hence it comes that while the thorax is well clothed in four or five layers of raiment, the abdomen and legs are practically naked—save for such melancholy protection as is afforded them by some overhanging petticoat. But the lower part of the body requires as much care as the upper. It is as sensitive to chills and as liable as other parts to receive and promulgate harmful impressions. Therefore, when long clothes are discarded they should be replaced by a pair of loose flannel drawers, such as can be fixed to the wraps covering the chest, and will go outside the necessary napkins, being tied loosely either over or under the socks at the ankles. Dr. Lewis Marshall has combated the objections to the usual underclothing of infants by a special knitted jersey, admirably adapted to its purpose, and which it may be hoped will in time displace the flannel hitherto in vogue.\*

Constipation may be due to malformation about the anus, more frequently to fissure, but most frequently, of course, of all to something amiss either in the tonicity of the bowel, the material it contains, or both. It is with the last group of cases that we are here concerned. The feces are almost always paler than normal, or even grey like those of jaundice. Constipation may prove troublesome even from birth, and I have notes of several cases where the bowels acted only every seven or eight days for some weeks. Some recommend that when this is the case the suckling should be treated through the mother, but this is a plan which is neither pleasant for her, nor very

\* The "Elizabeth binder," manufactured by Walker, Kempson & Co., of Leicester, can be procured through any hosier or draper. The knitted drawers are easily made at home.

successful in overcoming the constipation. If it be desirable to treat the case so, a seidlitz powder may be given, or some Carlsbad salts, or two drachms of bitartrate of potash may be dissolved in barley-water, flavoured and sweetened, and taken as a drink during the day. For the infant, castor oil (F. 3) is as good a medicine as any. Sometimes a little fluid magnesia twice or three times a day answers the purpose, or five grains of the sulphate of magnesia dissolved in syrup of ginger and dill-water (F. 5). Manna may be given (F. 6), or a powder of two grains of rhubarb and three of soda every night.

When a few months have passed over, or if the child be brought up by hand, better than all medicines by the mouth is the plan of attempting to modify the diet, or of exciting the lower bowel to expel its contents by enema or suppository of soap. A teaspoonful of fine oatmeal may be added to the morning meal, or barley-water may be mixed with each meal. Friction should also be applied to the abdomen, morning and evening, either by the hand alone or combined with an oily embrocation.

The barley-water is given as in previous cases. The oatmeal should be given, a teaspoonful well rubbed up with a little cold milk till it is of the consistence of cream; hot milk to the required amount for the meal is then to be added, and the whole boiled for a few minutes, when it is ready for use. If it be necessary to add an alkali, a grain or two of carbonate of soda can be used, as being devoid of the constipating tendency often observed with lime-water. For an enema all that is necessary is to take two or three ounces of warm water and lather into it a little yellow or curd soap, and inject it by means of a caoutchouc bottle syringe. A drachm or two of castor oil may be added to the soap and water if necessary. An enema may be administered every morning, or even twice a day if necessary, and I know no objection to its daily use as long as may be requisite. It is

being adequately cared for, appearances are belied by facts. The clothing of infants is adapted for the most part to the exigencies of urination, &c. It is so constantly wet, that anything elaborate for the loins and legs is less convenient than the time-honoured napkin. Hence it comes that while the thorax is well clothed in four or five layers of raiment, the abdomen and legs are practically naked—save for such melancholy protection as is afforded them by some overhanging petticoat. But the lower part of the body requires as much care as the upper. It is as sensitive to chills and as liable as other parts to receive and promulgate harmful impressions. Therefore, when long clothes are discarded they should be replaced by a pair of loose flannel drawers, such as can be fixed to the wraps covering the chest, and will go outside the necessary napkins, being tied loosely either over or under the socks at the ankles. Dr. Lewis Marshall has combated the objections to the usual underclothing of infants by a special knitted jersey, admirably adapted to its purpose, and which it may be hoped will in time displace the flannel hitherto in vogue.\*

**Constipation** may be due to malformation about the anus, more frequently to fissure, but most frequently, of course, of all to something amiss either in the tonicity of the bowel, the material it contains, or both. It is with the last group of cases that we are here concerned. The fæces are almost always paler than normal, or even grey like those of jaundice. Constipation may prove troublesome even from birth, and I have notes of several cases where the bowels acted only every seven or eight days for some weeks. Some recommend that when this is the case the suckling should be treated through the mother, but this is a plan which is neither pleasant for her, nor very

\* The "Elizabeth binder," manufactured by Walker, Kempson & Co., of Leicester, can be procured through any hosier or draper. The knitted drawers are easily made at home.

successful in overcoming the constipation. If it be desirable to treat the case so, a seidlitz powder may be given, or some Carlsbad salts, or two drachms of bitartrate of potash may be dissolved in barley-water, flavoured and sweetened, and taken as a drink during the day. For the infant, castor oil (F. 3) is as good a medicine as any. Sometimes a little fluid magnesia twice or three times a day answers the purpose, or five grains of the sulphate of magnesia dissolved in syrup of ginger and dill-water (F. 5). Manna may be given (F. 6), or a powder of two grains of rhubarb and three of soda every night.

When a few months have passed over, or if the child be brought up by hand, better than all medicines by the mouth is the plan of attempting to modify the diet, or of exciting the lower bowel to expel its contents by enema or suppository of soap. A teaspoonful of fine oatmeal may be added to the morning meal, or barley-water may be mixed with each meal. Friction should also be applied to the abdomen, morning and evening, either by the hand alone or combined with an oily embrocation.

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never to be given unnecessarily, but if the bowels do not act spontaneously the action should be ensured by an enema, and this may be done without any fear of inducing such a habit as would require its permanent use. It is but seldom that the bowels fail to act properly when the diet becomes more varied.

Should the constipation be associated with much flatulence and pain, a teaspoonful of fluid magnesia may be given, combined with a little spirit of nitric ether and sulphate of magnesia (F. 7). If associated with heartburn, which may be known by hiccough, which causes the child to cry or make faces, at the same time that it performs certain gustatory movements, carbonate of soda is to be given, and it may be combined with tincture of nux vomica, as recommended by Dr. Eustace Smith (F. 8). This combination is also useful when the bowels are persistently sluggish, from the nux vomica which it contains. A little glycerine may be added with advantage. The bicarbonate of soda is also useful when the eructations are sour-smelling from fermentation going on in the stomach. It may be usefully combined with bismuth and carminatives (F. 9, 10).

Other remedies may occasionally be found useful. Aloes powdered and dissolved in milk is recommended by some; five or six grains of socotrine aloes may be given three or four times a day till the bowels act; or it may be made into a syrup, a drachm of the aloes to an ounce and a half of syrup with some liquid extract of liquorice; or a small dose of euonymin (best administered in a powder with white sugar, gr.  $\frac{1}{4}$  of the drug); or a drop or two of the tincture of podophyllin; but such things will not be required often if attention be paid to the causes of the constipation, if the diet be carefully regulated and the general hygiene of the nursery—warmth, bathing, cleanliness—be kept at the right standard.

In children past the age of babyhood constipation is an occasional and somewhat troublesome affection.

It is more common in girls than in boys. The subjects of it are usually thin and plaintive, wayward in temper, without anything definitely wrong; their appetites are capricious, the breath often offensive, and they are supposed to have worms. Children they are who do no credit to good living, and who trouble the doctor because they are somewhat tardy in answering to his remedies, and because some of the symptoms may lead him to suspect the onset of the formation of tubercle. Henoch\* mentions even more extreme cases in children of seven and nine years in whom the constipation gradually leads to extreme distension of the whole abdomen, with pain and tenderness, so as to simulate peritonitis. I have myself seen one or two cases which may have been of this kind, but in which there has been visible peristaltic action and a dilated rectum. One boy that I remember was much relieved by the use of enemata, and the daily evacuation thus ensured, but when they were discontinued he was not permanently better, and I could not but suppose that the constipation owed its origin and persistency to some organic disease which could not be unveiled.

For constipation in older children, regular habits must be enforced. It is at least as necessary that a child should go to the closet regularly, as that she should do certain household duties, or perfect herself in certain accomplishments with regularity. But this is a matter that many mothers never think of. In the next place, cases of this kind are not adapted for the frequent exhibition of purgatives. Some gentle alkaline laxative may be given for a day or two, and, if it were not so nauseous to most palates, none is better than the old-fashioned rhubarb and soda (F. 11). Hospital out-patients take this, and even like it, but other children very seldom do, and a dessert-spoonful to a table-spoonful of the liq. magnesiæ carbonatis is taken by them with less repugnance. Some take Friedrichshall

\* "Vorlesungen über Kinderkrankheiten," p. 449.

very well; others, the granular effervescing salts. The sulphate of magnesia may be rendered fairly palatable with raspberry vinegar (F. 12). There is no objection to the administration of a single purgative of more drastic nature if it be only to ensure that the intestinal canal is cleared of all irritating contents. A grain of calomel, with six or eight grains of compound jalap or scammony powder, is efficient for such a purpose for a child of seven to ten years old; or a quarter to half a Tamar Indien lozenge may be given instead, the remedy being more pleasantly administered in the lozenge form. But drugs of this kind are to be given with this one distinct object in view, and they must not be resorted to repeatedly. When all such preliminary difficulties are cleared away, the constipation is to be cured by plenty of exercise in the open air; by a diet of plain nutritious food, with green vegetables and fruit; by insisting upon the proper mastication of all food, and by drugs which act as hepatic stimulants and tonics; strychnia may be given as a tonic to the bowels and arsenic and iron as blood restorers. Euonymin and podophyllin in small doses are useful members of the former class. (F. 13, 14, 15, 16, 17.)

Constipation, when it is unassociated with other symptoms, is not a condition which does much harm, and it may be remedied by patience and a little management.

Constipation, when it is associated with sickness, always requires careful investigation, and the possibility of intussusception, of brain disease, or of peritonitis should be remembered.

Constipation, when it is obstinate from birth, demands an examination of the rectum. Narrowing of the canal from the presence of some partial septum or other congenital malformation, though rare, is for that reason apt to be overlooked in its less extreme phases. And other forms of malformation, such as internal stricture of some portion of the small intestine,

and even hernia, occasionally exist. But such cases are very rare.

Lastly, constipation in young children is by no means uncommonly associated with small fissures about the anus. The pain of defæcation is so severe in these cases that the sphincter contracts tightly and prevents any successful expulsive efforts.

If there be an anal fissure, the bowels must be kept slightly relaxed, to obviate any stretching of the part, and the fissure should be treated locally by keeping the lower inch of the bowel and anus well greased with an ointment composed of equal parts of lead, zinc, and mercurial ointment, or it may be dusted with equal parts of calomel and oxide of zinc. Occasionally it may be necessary to paint it with nitrate of silver, and once or twice I have found it necessary to stretch the anus forcibly with the fingers, on the same principle as the surgeon adopts when in the adult he divides the superficial sphincter with the knife.

## CHAPTER IV.

## DIARRHŒA.

SOME writers have described many forms of diarrhœa, and would thus make the subject a complicated one for the student; but there is no corresponding morbid anatomy for the different kinds of looseness of bowels, and the results of treatment suggest a very simple division. Diarrhœa is the symptom of disordered or excessive function on the part of the neuro-muscular apparatus of the intestines, and any organ which depends for its action upon organic muscular fibre is liable to such functional derangements as may by their continuance become a confirmed habit, and yet have no appreciable morbid anatomy. The uterus may persistently abort time after time from the irritation of a syphilitic fœtus, for example, and show in itself no reason for so doing. The stomach may repeatedly cast its contents in similar fashion; and in children, and less frequently in adults also, diarrhœa may continue for months, resisting all treatment, without adequate cause in any structural lesion. The student must not therefore conclude, as he is often inclined to do, that, the diarrhœa being chronic and intractable, it is due to ulceration of the bowel; much less that not only is there ulceration, but that that ulceration is tubercular.

The division I propose to make as simple, and according with practice, is into acute and chronic diarrhœa, and *in limine* this generalization may be made:—

Looseness of bowels which has existed any length of time should be closely investigated, as it is pretty sure to prove troublesome to stop, and may indicate serious disease of the intestine and mesenteric glands;

while the diarrhœa which comes on suddenly, is associated with vomiting, and prevails to such an extent in the hot season of the year that it has received the name of summer diarrhœa, though by no means wanting in its more special dangers, need give rise to no such anxieties, being usually readily curable by simple means.

**Acute Diarrhœa.**—Of late years summer diarrhœa has been thought to be an index of the sanitary condition of large towns, and to be due in larger measure to filth and putrefactive processes than, as had been previously held, to simple atmospheric disturbances, the nervous activities of dentition, and so on; and this view is probably correct. The very existence of large towns implies the presence of more or less material which possesses the power of originating putrefaction of all sorts. Aggregation is necessarily more favourable to the transmission of septic material than isolation can be. The subjects of this complaint are all under five and most of them under two years of age—that is to say, they are in great measure milk-feeders, and milk is a fluid which is very sensitive to contamination.\* It may therefore be very readily supposed that whatever tends to lessen the risk of this putrefaction—and what more so than paying attention to the sanitary condition of a town?—will by lessening the

\* I may remind the reader that all organic liquids, though under ordinary circumstances liable to decomposition, remain absolutely unchanged as long as they are protected from particulate contagion, and there is good evidence that the various kinds of fermentation and putrefaction are due to the introduction and growth of various kinds of bacteria. Of milk in particular I may quote from Sir Joseph Lister, whose researches in this domain are well known ("On Lactic Fermentation," *Trans. Path. Soc. of Lond.*, vol. xxix. p. 435):—"I once met with a bacterium, but only once, that would not live in milk; for extremely numerous as the varieties of bacteria appear to be, almost all of them seem to thrive in that liquid." The outbreaks of such diseases as typhoid fever, scarlatina, diphtheria, and even of epidemic diarrhœa, which have of late years been traced to a milk source, must, according to present knowledge, be explained in this way, although the actual bacterium or germ has not as yet in any case been demonstrated.

risk of decomposition to which milk and other foods are liable, by so much lessen the amount of summer diarrhœa.

But the whole subject is not wholly embraced by this statement. There are some children, and some adults too, who are readily affected by alterations of barometric pressure, electrical atmospheric disturbances, and so on. Looseness of bowels is noticed in such subjects on any sudden fall or rise of the mercurial column; any sudden change from one extreme to the other of heat or cold; or in thundery weather.

What such reactions may indicate etiologically—how far, that is to say, they point to changes in the food, and how far act immediately upon the system—it is impossible to say, and happily for the purposes of therapeutics, though the facts are worthy of recognition, they cannot at present be said to influence treatment. Diarrhœa is supposed, and probably correctly so, to own many other causes more or less direct, such as chills, over-feeding, improper feeding, dentition, pyrexia of all sorts, rickets, syphilis; and some of these are associated with certain signs which, as I have said, have justified to some writers the description of many varieties. I think it, however, sufficient to say that sometimes there is more or less fever, sometimes perhaps vomiting; in others there are lumpy motions of undigested food; a want of bile; an excess of bile; a rice-watery discharge. In other cases the evacuations are of peculiar colour, pink or green. Some are peculiarly offensive.

In one form or another during the summer months the out-patient room of any children's hospital is overrun with cases of diarrhœa, mostly infants of four or five months old and upwards. They group themselves into three varieties, which, for want of better names, I will call: 1. Simple diarrhœa, 2. Febrile diarrhœa, 3. Cholera infantum. Exception may perhaps be taken to such a nomenclature as this, because any one of the three varieties may be associ-

ated with fever, and the simple may run on to the febrile form, or even into cholera infantum. To this I can but reply that, based upon symptoms and not upon distinct pathological conditions, any division is likely to be technically faulty, although it may be none the less useful to work from. So here: simple diarrhœa is not symptomatically febrile, although the body heat may sometimes be increased. Febrile diarrhœa, on the other hand, is associated with the aspect, the tongue, the pulse of fever; and cholera infantum, while it will often show a higher pyrexia than either of the other varieties, has nevertheless a characteristic garb of its own.

**Simple Diarrhœa** (? Muco-enteritis, Catarrhal Enteritis).—The complaint varies much in severity. To take a common case: the child has been vomiting and purged for some days with little apparent disturbance of its health. There is a certain amount of pallor, a little fretfulness and restlessness, and slight rise of temperature. It is usually thirsty, will drink any quantity of cold water, and milk is vomited undigested in curds. The mouth is somewhat dry, the tongue redder than natural, and its papillæ are prominent. There may be some erythema about the buttocks, and the motions are usually liquid, green, and offensive. Sometimes the evacuations are bright yellow; in others again pale. The majority of such cases are readily cured by simple treatment, but it also happens sometimes that, the diarrhœa having existed on and off for a week or two, the symptoms of cholera infantum suddenly develop.

**Febrile Diarrhœa** (? Enterocolitis).—In these cases, less common—that is to say, more sporadic—in my experience than the foregoing, but prevailing largely according to Dr. Starr in the large American towns, there is anorexia, with sour-smelling eructations, vomiting, and diarrhœa. The pulse is quick, there is considerable fever ( $102^{\circ}$  to  $103^{\circ}$ ), and the tongue is thickly coated with white fur, the edges and tip being

red. The mouth is wanting in natural moisture. The abdomen is usually full and rather tender, the motions are liquid or partly liquid and partly lumpy, fæcal or green in character, and often mixed with an excess of mucus or blood-tinted gelatinous material. Such cases occur at all periods of the year, sometimes during dentition, sometimes after unwholesome food. As the case goes on, the fever may oscillate considerably or remit; the child wastes, becomes very restless, and may ultimately sink into a state of stupor and die. One feature is that at the onset the appearances may be those of an ordinary case of temporary gastric disturbance such as need give rise to no anxiety. But, instead of answering to the expectations of a speedy convalescence, the child drags on from day to day and perhaps dies, or mends after the most tardy fashion. Children remain sometimes for months, after an attack of this kind, wizened and flabby and with dainty bowels. The symptoms correspond to the acute dyspepsia of some writers, the infective gastritis or the muco-enteritis of others. Dr. Starr considers the disease to be most prevalent in the summer months (from May to September), and to be dependent in great measure upon overcrowding, animal exhalations, and general unwholesomeness of the child's home. I am inclined to agree with him as regards faulty hygiene, for some of the most intractable cases that I have seen have been in neighbourhoods which were obviously lacking in sweetness.\*

**Cholera Infantum** is so called because the symptoms closely resemble Asiatic cholera of the adult. That is to say, the disease is sudden in its onset, is attended by profuse watery evacuations, the infant speedily becomes collapsed, shrivelled, and corpse-like, and dies. To go a little more into detail: the onset

\* The reader should here refer to the second and third paragraphs in the chapter on typhoid fever (xvii.). What I have there said concerning infective gastritis is equally pertinent to the subject of febrile diarrhoea from the standpoint of typhoid fever.

is sudden, but it frequently happens that there has been an irregular diarrhoea for some days. Then the character of the ejecta changes; they become quite watery in consistence and of a dirty coffee colour and very offensive, or perhaps rice-water like and with less objectionable fætor. The stomach at the same time becomes more or less irritable, and often rejects everything. The rapidity of the change in the child is startling. One or two of the characteristic motions, and as many hours, will reduce it from comparative health to a moribund state, in which the fontanelle is sunken, the orbits scooped out, the eyes smeared with a film of mucus, the soft parts shrivelled down upon the bones, the skin hanging in folds or generally wrinkled. The abdomen is retracted, the cry an almost inaudible sibilus, and the voluntary muscular movements so slow and feeble that they come more to resemble those of unstriped muscle. The temperature in this condition is that of collapse—viz., below normal—but in the earlier stages it is said to rise to  $105^{\circ}$  to  $108^{\circ}$ , and, should reaction become established, more or less pyrexia returns. The mortality in these cases is a very high one. Many die off in a state of collapse. Improvement is known by the cessation of the vomiting and diarrhoea, if at the same time there are evidences of lessening exhaustion. The mere cessation of vomiting and the return of more healthy evacuations must not, however, be interpreted too favourably if the exhaustion has reached any extreme degree; and, supposing reaction to become established, there is still a febrile stage to pass through, in which the stomach and intestines remain irritable, the tongue is dry, red, and aphthous, and for days the child hovers fitfully, and then at last, perhaps, becomes again drowsy, and sinks. The evacuations of cholera infantum have been subjected to microscopical examination, but only to find them containing epithelium and vibriones such as may be found in most cases of diarrhoea. It is difficult to say what chances