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Short Talks With Young Mothers

ON THE MANAGEMENT OF INFANTS
AND YOUNG CHILDREN

BY

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SECOND EDITION, REVISED AND ENLARGED

ILLUSTRATED

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ELEMENTS
OF
ALGEBRA

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(For Revised Edition)

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TO
L. EMMETT HOLT, M.D.

Clinical Professor of Diseases of Children in the College of Physicians
and Surgeons (Columbia University) New York

THIS WORK IS INSCRIBED

IN RECOGNITION OF HIS HIGH PROFESSIONAL ATTAINMENTS AND
ENTHUSIASM IN PROMOTING THE STUDY OF DISEASES
OF CHILDREN, AND IN GRATEFUL APPRECIATION
OF MANY ACTS OF KINDNESS

PREFACE TO SECOND EDITION

THIS book was originally prepared with the view of aiding young mothers in the care and rearing of their children. In the second edition, new subject matter has been added, together with additions to the text, with the hope of further extending its field of usefulness.

PREFACE

THE aim of this book is to help the young mother to a closer acquaintance with and a more intelligent appreciation of the nature and demands of the little life entrusted to her care.

In its preparation the author has kept in mind and has endeavored to answer the personal questions of many thoughtful young mothers. The better-class young mother of the present day is not content with the meagre information possessed by her mother and grandmother.

Suggestions relating to medical treatment are intentionally avoided. A mother should know all the details of the child's feeding, clothing, bathing, and airing, and what to do in an emergency. She should also be able to recognize symptoms of illness and appreciate their significance. She is not supposed to be skilled in the use of drugs.

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SHORT TALKS
WITH YOUNG MOTHERS

SHORT TALKS WITH YOUNG MOTHERS

THE BABY-BASKET AND ITS CONTENTS

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(See Fig. 1.)

A BASKET in which all the toilet necessities for the baby may be kept together will be found a great convenience when the time for their use arrives.

To be provided are:

A good-sized pin-cushion and pins.

Puff-box and puff.

Soap-box containing Castile soap.

Infant's hair brush and fine comb.

Eight ounces of a saturated solution of boracic acid for mouth and eyes.

One-half pound of absorbent cotton.

A package of wooden toothpicks.

A bottle of white vaseline.

The Baby-Basket

A bath thermometer.

One yard of plain sterile gauze.

Plenty of soft old linen.

Six of the best baby towels.

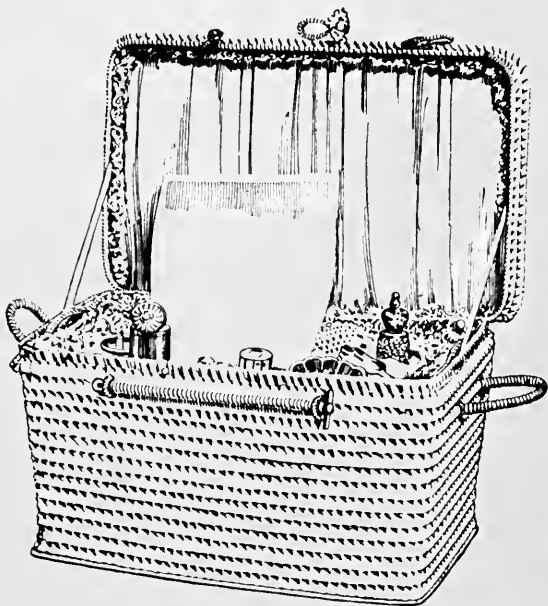


FIG. 1. BABY-BASKET

A white eiderdown blanket one and one-half yards long.

One pair of small scissors.

A package of nickel-plated safety-pins (three sizes).

CLOTHING TO BE PROVIDED

Forty-eight cotton diapers, made from birdseye cotton diaper; two sizes are necessary.

(a) Three pieces 20 in.

(b) Three pieces 22 in.

One yard of white flannel for belly-bands. Leave the piece as it is, to be used by the trained nurse as required. After the sixth week knitted bands with shoulder straps are preferable.

Four second-size silk-and-wool shirts.

Six pinning blankets made of white flannel with cotton bands.

Three flannel skirts.

Three white skirts.

Six night slips to be used day and night for five or six weeks.

Six day slips as plain as possible, bishop style.

Three eiderdown wrappers.

Three cashmere sacques.

THE FIRST DUTY TO THE CHILD

With the severing of the umbilical cord

the child begins an independent existence. It is made to cry, the eyes and mouth receive attention, when it is wrapped in a soft, warm blanket and placed out of draughts until it can be given further attention. During the excitement of the occasion and the needs of the mother the baby is sometimes neglected, often with serious consequences. I once saw, with another physician, a fatal case of pneumonia in a child four days old, the disease being due in all probability to neglect. It must not be forgotten that the baby has been suddenly transported into an entirely different sphere of action from that to which he is accustomed, and we must make the change as easy for him to bear as possible. As soon as the nurse can devote her attention to the baby he should be gently and thoroughly oiled with liquid albolene or sweet oil. This is to be followed later by a sponge bath with lukewarm water and Castile soap. The stump of the cord should be dusted with some dry antiseptic powder and wrapped in dry, plain sterile gauze. The cord, particularly at its junction with the abdomen, should be thoroughly dusted twice a day. When it falls off, the parts should be kept dusted and

dry until cicatrization is complete. The following powder has proven most satisfactory in my hands:

Salicylic acid, 15 grains.

Powdered starch, 1 ounce.

Powdered oxide of zinc, 1 ounce.

THE WELL BABY

In order to appreciate disease or failure in proper growth and development, it is necessary to know what constitutes a well baby. The well baby grows steadily, shows an increase in weight of from five to six ounces a week, the muscles are firm, the skin clear, and the eyes bright. When hungry he makes it known by crying lustily. At the completion of the feeding he gives evidence of comfort by drowsiness, or by falling asleep. There are two or three soft yellow stools daily. After the second month the well baby appreciates a moderate amount of attention, and is attracted to bright objects and pleasant faces. His sleep is restful, and he wakes good-natured unless he is hungry. It is not to be understood that the well baby cries only when hungry. He often cries while being undressed, when the clothing

is uncomfortable, when objectionable people appear before him, or when suffering from pain.

At the fourth or fifth month he should be able to hold his head erect without support; from the sixth to the seventh month—at this time the first tooth is usually cut—he acquires the power of sitting up without assistance; from the ninth to the tenth month he begins to creep, and from the twelfth to the eighteenth month he learns to walk alone. A very few children walk alone before the twelfth month; the great majority, however, are from fifteen to eighteen months before this important feat is accomplished. There is nothing to be gained and much harm may be done by parents favoring early walking. When the child learns to walk unaided, it is usually safe to allow him to continue, unless he is very heavy. A child four or five pounds over weight should be carefully watched and the walking prevented to any extent until he is seventeen or eighteen months of age. Early walking in these heavy children is very apt to produce flat feet, knock-knee, or bowed-legs.

THE WEIGHT OF THE WELL BABY

	BOYS	GIRLS
Average weight at birth	7.55 lbs.	7.16 lbs.
" " " three months	11.75 "	11.5 "
" " " six months	16. "	15.5 "
" " " nine months	18. "	17.75 "
" " " twelve months	20. "	19.8 "
" " " eighteen months	22.8 "	22. "
" " " two years	26.5 "	25.5 "
" " " three years	31.5 "	30. "
" " " four years	35. "	34. "
" " " five years	41.2 "	39.8 "
" " " six years	45.1 "	43.8 "

Every child under one year of age should be weighed once a week. The very weak and delicate and those who are being put through a new course of dietetic treatment on account of failure in growth, should be weighed two or three times a week. An infant is doing fairly well who gains on an average four ounces a week, ten months in the year. Such a child, however, needs careful watching. If he gains from six to ten ounces a week, we are perfectly satisfied with his progress. The use of the weight chart I do not advise. Such a chart, while recommended by many well-known writers, has been the cause of serious trouble. The mother and nurse wish the baby's weight

8 Weight of the Well Baby

chart to make a good showing—to show something phenomenal if possible—for the admiration of relatives and friends. Some perfectly well, vigorous babies increase in weight slowly, but a gain of only four or five ounces a week—below the standard of her neighbor or the normal weight line on the chart—makes a very unsatisfactory chart, and the mother in consequence begins to worry, fearing that her baby is not being properly nourished. Worry and anxiety have caused the milk of hundreds of mothers to fail, and rendered further nursing impossible. If the babe is wet-nursed and the chart does not show a large gain, the mother scolds, the family generally is dissatisfied, the wet-nurse becomes angry, and, fearing lest she lose her position, her milk soon fails and she is unable to nurse the baby. If the baby is bottle-fed, there is a strong tendency to overfeed him in order to make a pretty chart, and as a result the child is made ill.

The gain in weight is much less in summer than during the cooler months. I have seen many children in perfect health pass through July and August without gaining an ounce; but with the arrival of cooler weather they

will surely make up for the time lost. There is usually a decided loss in weight the first four days of life. This loss—from a quarter to a half pound—will usually be regained in five or six days if the child is properly fed. At the end of the first year the child should weigh two and one-half times as much as at birth. There should be a gain of about seven pounds during the second year.

HEIGHT IN INCHES FROM BIRTH TO SIXTH YEAR

<i>At Birth.</i>	<i>6 months</i>	<i>12 months</i>
Boys, 20.6	25.4	29
Girls, 20.5	25	28.7
<i>18 months</i>	<i>Two years</i>	<i>Three years</i>
Boys, 30	32.5	35
Girls, 29.7	32.5	35
<i>Four years</i>	<i>Five years</i>	<i>Six years</i>
Boys, 38	41.7	44.1
Girls, 38	41.4	43.6

HOW TO LIFT THE BABY

A baby should be lifted by placing one hand under the buttocks and the other under the head. Until the fifth or sixth month is

reached, a child should never be raised with the head unsupported.

THE NURSERY

The nursery should be the largest and best ventilated room in the house. In a city home it is best to have it on the third or fourth floor with a southern exposure. In apartments, quiet and the possibility of free ventilation and sunlight must be considered in selecting the room. For the sake of quiet the nursery should not communicate with the sleeping-rooms of older children.

In placing children in sleeping-rooms or in a nursery, or in estimating the capacity of hospital wards for children, it is to be remembered that at least one thousand cubic feet of air-space should be allowed to each child.

The floor of the nursery should not be carpeted. A hard-wood floor is best. If this is not possible, covering the floor with oil-cloth or linoleum is always possible. This can be cleaned with a damp cloth every day. A broom should never be used in a nursery. Paint or hard finish on the walls

is preferable to paper. There should be at least two windows and an open fireplace. If possible, the bath-room should be connected with the nursery, to be used not only for bathing the child but as a "changing room." The child's napkins should not be changed in its living-room if it can be avoided. It is needless to say that napkins should never be dried in the nursery.

Steam heat as ordinarily used to-day is the least desirable means of heating, on account of its uncertainty. In many New York apartments of the better class the fires are banked at 10 P. M.; the temperature when the child retires is from 70° to 80° F. or more; by five or six o'clock in the morning a fall to from 50° to 60° F. has taken place. Such a change in the temperature with the tendency of children to kick off the bed-clothes explains many cases of tonsillitis and bronchitis. The temperature of the nursery should be kept as even as possible. When for any reason this cannot be controlled, it is best to have two means of heating, so that when one fails the other may be used. The open-grate fire or a small wood-stove is best. Gas ought never to be employed as a means

The Nursery

of heating a child's sleeping-room, on account of the rapid exhaustion of the oxygen which results from its use.

The furniture of the nursery should be of the plainest. Hard-wood chairs and tables with enamel or brass cribs or bedsteads should be used. There should be no article of furniture or furnishings in a nursery that cannot be washed. There should be in the bath-room or in some room adjoining, a pail containing some disinfectant solution, such as carbolic acid, one tablespoonful to two gallons of water, in which the napkins are placed as soon as soiled.

There should be two shades at each window, a light and a dark shade, so that it will be possible to darken the room during the sleeping time, as well as to exclude the early morning light, which is the usual cause of too early waking. Babies should be taught to sleep until at least six o'clock in the morning. This is far better for the child and also for the mother if she occupies the same room. The unnecessary habit of an early waking at four or five o'clock will in most instances readily be broken by keeping the room dark.

The nursery should have suitable means

for ventilation. For this purpose, aside from the fireplace, I have found the window board of no little service. It can be made of any width. Ordinarily, I have it made about four inches wide. It is sawed so as to fit tightly under the lower sash. This leaves an open space corresponding to the width of the board between the upper and lower sash, and allows the entrance of a current of air which is directed upward. There should be a thermometer in every child's living-room or nursery. It should register from 70° to 72° F. by day and from 60° to 65° F. by night. The nursery should be given an hour's airing twice a day. The child should sleep alone in its crib. It should not sleep with an adult or an older child. The old-fashioned cradle in which generations have been rocked may be an interesting heirloom, but under no circumstances should it be removed from its place in the garret.

MATERNAL NURSING

Writers on this subject are very apt to state that the ability of the mother, particularly among the well-to-do, to fulfil this

most important function is surely decreasing. This may have been a true statement a decade ago; at the present time, however, I am sure it is erroneous. In my own medical life I have seen a change for the better, particularly during the past five years. The young mother of today is better able to nurse her offspring than was her sister five or ten years ago. I attribute this to the fact that the youth of the present day are more vigorous, more nearly normal individuals than were those of a decade ago. The inability to perform the nursing function so that it will be successful has always been attributed to the mother *per se*. This, I think, is an error. Not every breast-milk for two or three weeks after parturition is ideal, as I have found by the examinations of hundreds of them. If a child is born with a generally enfeebled vitality, it keenly feels any slight abnormality in the milk, or it may not be able to digest perfectly normal milk; in either event, the milk disagrees and the nursing is discontinued. Breast-milk during the first two or three weeks of the infant's life is produced under conditions which are unfavorable—conditions which do not indicate the possibilities

of the breast as a secreting organ. Following, as it does, upon the stress of confinement, it is not indicative of what may be possible later when the customary life and daily habits are resumed. Repeatedly I have found a very high fat or a high proteid, or both, during the first week or two, entirely corrected later without interference. This condition at the time was considered sufficiently serious to warrant the discontinuance of nursing on the part of a weakly infant, while in a vigorous infant it would be entirely ignored.

The change which enables more mothers successfully to nurse their infants is due to two causes—more vigorous fathers and mothers and more vigorous offspring. Following this line of reasoning, the more normal the mother, the better able is she to perform this normal function. That this is the case is due, I believe, to the fact that growing girls and young women are leading more hygienic lives than formerly. The making of golf, bicycle and horseback riding, boating, and automobiling popular and fashionable—in short, the taking of girls out-of-doors and keeping them there a considerable portion of the day—has worked a marvellous change

for the better, both physically and mentally. A neurotic mother makes the poorest possible milk-producer. Proportionate to the population, there are fewer neurasthenics among the young women to-day than there were ten years ago, and there will be still fewer ten years hence. At the present time the timid, retiring young woman of the neurasthenic type is not popular in her set. It is a fortunate thing for the future of the human race, at least for that portion of it which resides in the United States, that the young woman has transferred her allegiance from the crochet and embroidery needle to the golf club. It may be said that our argument holds only with the wealthy or the well-to-do. Imitation is one of the strongest characteristics of the human race, and this tendency in America to outdoor hygienic living pervades all classes. Saturday half-holidays, the excursions and outings afforded by reduced rates of transportation, are much more popular than they were ten years ago. Food is better selected and better prepared, owing to increased knowledge on the part of the people as to what constitutes proper nutrition. These are facts, in spite of the

sensational novelists and magazine-writers.

A feature which marks an important advance in the right direction is the establishment of a department in dietetics and food economics in the New York Training School for Teachers. The Dean, Dr. James E. Russell, in establishing this course, is producing benefits which reach farther than he realizes. The students are taught food values, food preparation, and food economics, which consists in providing for a given amount of money the most nutritious food in its most attractive form. Hundreds of teachers are sent out from this institution every year to take their places of usefulness as instructors of the young in all portions of the country. Each has learned something of food values, and better still each has had impressed upon him or her the importance of the proper nutrition of a growing child. They are taught that, without this, the best possible type of adult cannot be produced. As a result of such instruction they will be of far greater service in their fields of labor, for not only can they teach what is laid down in the books, but, what is equally if not more important, they are competent to teach those

under their care how to live; and those who live properly, grow properly, following out the maxim of Herbert Spencer that "the first requisite for success in life is to be a good animal; and to be a nation of good animals is the first condition of national prosperity." It may be thought that we have wandered far from our subject—maternal nursing, but such is not the case; for conditions which relate to this important function, even remotely, demand our respectful consideration. The food and care of the growing girl have the most intimate bearing upon her future life, and if she is to be called upon to perform the most important function of womanhood, she surely has the right to demand that she receive during her girlhood proper preparation, which heretofore has too often been denied her.

It is not pleasant to criticise physicians; but friendly criticism should always be welcomed. The family physician does not, in a great majority of instances, fulfil his function, or extend his field of usefulness to its full capacity, his conception of duty too often including only the sick. Unsought advice as to the feeding and daily habits of a child's

life, I find, are usually welcomed and appreciated by mothers. In practically every instance, according to my observation, errors in a child's management are due to ignorance. Mothers, no matter what their station in life, are glad to do what is for the best interests of their children when it is made clear to them. It is the duty of the physician to take the mother into his confidence and explain to her the reasons for the line of action advised. When she appreciates the reason for certain procedures, I find that she is far more apt to follow them. I am confident from observations upon many cases that if I could have the physical direction of ten average girls in any station in life, provided that they could have the benefit of fresh air and good food from infancy to adolescence, successful nursing mothers could be made out of eight of them. Certain rules of life having a direct bearing on nursing lead us nearer the ideal and may enable one who otherwise could not nurse her child to do so successfully. These requirements, it will be seen, are laid along common-sense lines and cause no hardship or mental distress one of the chief requirements of a nursing

woman being that she shall be mentally normal.

There are few conditions in which we are called to act so variable and so uncertain as is the production of breast-milk. Breast-milk is one of the most precious substances. It is invaluable, unless we can put a value on human life. The most successful nursing age is between the twentieth and thirty-fifth years. I have, however, seen it successfully carried on in a girl of fourteen, in a woman of fifty-two, and in the much-abused society girl, while I have seen it fail absolutely in peasant women fresh from the fields of Hungary and Bohemia. I have seen those in whom at first the nursing was most unsatisfactory develop into perfect nurses.

Some mothers will be able to carry on the nursing for only two months; others, three, five, seven, or nine months. In my experience, whether in out-patient or in private practice, it is extremely rare for the breast-milk to be sufficient for the child after the ninth month,

The following can be laid down as nursing axioms;

A diet similar to what the mother was

accustomed to before the advent of motherhood should be taken.

There should be one bowel evacuation daily.

There should be from three to four hours daily spent in the open air with exercise which does not fatigue.

There should be at least eight hours' sleep out of every twenty-four.

There should be absolute regularity in nursing.

There should be no worry and no excitement.

The mother should be temperate in all things.

The diet.—I have many times been consulted by nursing mothers because the nursing was unsuccessful or a partial failure, and have found that their diet has been restricted to an extreme degree. To put on a greatly restricted diet a robust young mother who has always eaten bountifully of a generous variety of foods is one of the best means of curtailing the quantity and lowering the quality of her milk-supply. When asked to prescribe a diet I tell them to eat practically as they were accustomed to before the advent

of pregnancy and motherhood. That this particular vegetable or that particular fruit should be forbidden, on general principles is a fallacy. Food that the patient can digest without inconvenience is a safe food so far as the nursing is concerned, as may readily be determined in any given case. If a wide range of diet is prescribed in some individuals, a plain, more or less restricted diet is desirable in others. Many a wet-nurse who has been carefully selected, who to the best of our judgment should prove satisfactory, utterly fails in a few days to fulfil the duties of the office for which she was chosen. In not a few instances the failure is due to a very full diet of unusual articles of food, the existence of which, in many instances, she never dreamed of. Indigestion and constipation follow, and both the nurse and the baby are made ill and the woman's usefulness ceases. A woman who has lived and been well on the diet and food found in the home of the laboring man, whether in the city or country, will make a far better wet-nurse on this diet than if she indulges in food to which she is entirely unaccustomed. The diet of a nursing mother, then, should in general be as above stated.

Nursing is a perfectly normal function, and a mother should be permitted to carry it out along only natural lines. Inasmuch as there are two lives to be provided for instead of one, more food, particularly of a liquid character, may be taken than she may have been accustomed to. It is my custom to advise that milk be given freely. A glass of milk may be taken in the middle of the afternoon, and eight ounces of milk with eight ounces of oatmeal or cornmeal gruel at bedtime, if it does not disagree. Our only evidence that a food is not disagreeing is the condition of the digestion. When any article of food disagrees with the mother, or if she is convinced that it disagrees, whether or not such is really the case, the food should be discontinued. In a general way, milk in quantities not over one quart daily, eggs, meat, fish, poultry, cereals, green vegetables, and stewed fruit constitute a basis for selection. The method of preparation for the different meals is not arbitrary.

The bowel function.--A very important and often neglected matter in relation to nursing is the condition of the bowels. There must be one free evacuation daily. For the

treatment of constipation in nursing women I have used different methods in many cases. The dietetic treatment does not promise much. For here, again, manipulation of the diet may interfere with the milk production. Three methods are open to use: massage, local measures, and drugs. Massage is available in comparatively few cases. Local measures consist in the use of enemas or suppositories. Every nursing woman under my care is instructed to use an enema at bedtime if no evacuation of the bowels has taken place during the previous twenty-four hours. Many out-patients, in whom constipation is very prevalent, indulge in excessive tea-drinking, taking often from one to two gallons of tea daily. In such patients, where an absolute discontinuance of the tea-drinking is often impossible and not absolutely necessary, I usually allow two cups a day. When a laxative is necessary, it should be prescribed by a physician.

Air and exercise.—Outdoor life and exercise are desirable here as they are under all other conditions. In a nursing woman, with her added responsibility, they are doubly so. In order to get the best results, exercise or

work should so be adjusted as not to reach the point of fatigue. The mother whose nights are disturbed should be given the benefit of a midday rest of an hour or two. She should have at least eight hours' sleep out of every twenty-four. Certain annoyances, anxieties, and worries are inseparable from the life of every child-bearing woman. It should be our duty, however, to explain to the mother and to other members of the family that an important element in satisfactory nursing is a tranquil mind. During the lactation period she should be spared all unnecessary care and petty annoyances.

Regularity in nursing. The breast which is emptied at definite intervals invariably works better than does one which is not, not only as regards the quantity, but the quality of the milk as well; so that system in breast-feeding is almost as essential to milk-production as to its digestion and assimilation.

After it is demonstrated that the nursing is progressing satisfactorily as proved by the satisfied, thriving child, I begin with one bottle-feeding daily. The advisability is obvious; in case of illness of the mother, if she is called away from home, or if, for any

reason, the child cannot have the breast, the feeding is provided for. Another advantage is that it gives the mother needed freedom from restraint. She is thus enabled to have the benefit of a change of scene. Amusements and recreations which the invariable nursing period denies her can be indulged in. As a result of this greater freedom, she is able to supply better milk and to continue nursing longer than if tied continually to the baby, no matter how fond she may be of it.

Signs of successful nursing.—The child shows a gain of not less than four ounces weekly. This is the minimum weekly gain which may safely be allowed. When a nursing baby remains stationary in weight or makes a gain of but two or three ounces a week, it means that something is wrong, and it will usually, but not invariably, be found in the milk supply. When the baby is nursed at proper intervals and the supply of milk is ample and of good quality, he is satisfied at the completion of the nursing. If he is under three months of age, he falls asleep after ten or twenty minutes at the breast. When the nursing period again approaches, he becomes restless and unhappy, crying lustily if the

nursing is delayed. When the breast is offered, he takes it greedily. The stools are yellow and number from two to three daily. The weekly gain in weight under such conditions is usually from six to eight ounces.

Signs of unsuccessful nursing.—Theoretically, every normal breast baby should be a thriving, well baby. That such is not the case is an unfortunate fact. The standard established for a well baby is not upheld here. When the supply of milk is scanty the child remains long at the breast and cries when he is removed. He shows signs of hunger before the nursing hour arrives. A cause of failure in breast-feeding, and probably the most frequent cause, is a scanty milk-supply. The chief nutritional elements in mother's milk are: fat, 3 to 4 per cent.; sugar, 7 per cent.; proteid, 1.5 per cent. Failure may be due to a marked disproportion of these elements, which may cause sufficient indigestion and resulting loss in weight to necessitate the discontinuance of nursing. Thus there may be a high fat—from 5 to 6 per cent.; or very low fat—from 1 to 1.5 per cent. In the high-fat cases there will usually be diarrhoea with green, watery stools. The child strains a

great deal and there are green stains on many of the napkins. In high-fat cases there is also regurgitation or vomiting of sour material. Low fat means deficient nourishment and may cause constipation. Sugar is rarely a cause of trouble in nursing babies. It seldom varies, ranging from 5 to 7 per cent. in the great majority of breast-milks. Young children, further, have a marked toleration for it. The proteid of mother's milk is the most frequent cause of nursing difficulties. Like the fat, it may so be decreased that nutritional disorder may be induced in the patient, or it may be very much increased; the latter being usually the cause of colic or constipation in otherwise healthy nursing infants. In such infants curds may be found in the stools, the passage of which is always accompanied by a great deal of gas. The milk may contain the normal percentage of fat, sugar, and proteid, but be scanty in amount. Instead of the four or five ounces to which the child is entitled, he may get but one or two ounces. Whether or not the quantity is sufficient can be determined by weighing the baby before and after each nursing, for twenty-four hours. One ounce

of breast-milk practically weighs one ounce avoirdupois. The quality or strength is determined by an examination of the milk itself by the physician. Before nursing, the child is put in the scales without undressing him and the weight noted. He is allowed to nurse fifteen minutes. He is then removed from the breast and weighed. A child under one week should have gained from 1 to $1\frac{1}{2}$ ounces; at three weeks of age, $1\frac{1}{2}$ to 2 ounces; four to eight weeks of age, 2 to 3 ounces; eight to sixteen weeks of age, 3 to 4 ounces; sixteen to twenty-four weeks of age, 4 to 6 ounces; six to nine months of age, 6 to 8 ounces; nine to twelve months of age, 8 to 9 ounces.

Of course arbitrary limits cannot be fixed as to the quantity. Stationary weight or loss in weight with a dissatisfied child usually means defects in quantity which are readily proved by the weighing. To be fed at the breast may also cause the child to suffer from an excess of good milk, in which event there will be vomiting or regurgitation, usually associated with colic. When this overfeeding continues, dilatation of the stomach develops, vomiting becomes habitual, the child loses in weight, and the breast-milk is

said not to agree, and often, unfortunately, the baby is weaned. This has been the outcome in scores of cases. When there is habitual vomiting and colic in a nursing baby, two things are to be done—the baby must be weighed before and after nursing, and the milk must be examined.

I have repeatedly treated children for indigestion who were entirely relieved by shortening the nursing period. Weighing the baby at intervals of from three to five minutes and noting the gain has shown that the three or four ounces which may be the child's stomach capacity was obtained in two, three, or five minutes, the excess which the child took over this amount being the cause of his trouble. Given a free, full breast and a vigorous nurser, and one ounce will be taken in one minute. When the nursing "gait" is established, a child should be kept up to the schedule. There are few more pernicious teachings than that a baby should be allowed to nurse when he wants to and as long as he wants to. The idea that a nursing infant will take no more than is good for him is the fruit of inexperience. Recently a mother consulted me in regard to putting

her one-month-old baby on the bottle, as he had many green stools, cried a great part of his waking hours, and weighed but a few ounces more than at birth. Her milk was supposed to be "too strong" for the child. An examination of the breast and a talk with the mother satisfied me that the breast-milk was not at fault. An examination of the milk proved it to be good average milk—3.5 per cent. fat, 6 per cent. sugar, 1.45 per cent. proteid. A one-day's test by weighing was decided upon. He was allowed to nurse one minute and rest one minute. During the resting period he was weighed. Weighing and resting him in this way, it was found that in three minutes he got from 3 to 3½ ounces of milk. The nursing was then reduced to three minutes on one breast and five minutes on the other, which was the "slower" breast of the two. Every sign of indigestion promptly disappeared after this change. The stools became normal and the infant made a satisfactory gain in weight of one ounce daily.

The quantity may be suitable for the age of the child, he may not vomit or show a sign of indigestion, and yet he may not thrive.

In such a case an examination or repeated examinations of the milk at intervals of two or three days will usually show that it is poor, below the normal perhaps in both fat and proteid. Such a case occurred in the New York Infant Asylum. A Swedish woman was admitted with an infant two months old in fair condition. She had an abundance of milk and asked for a foster-child, so great was her discomfort from the excessive flow of milk. The weekly weighings of the children soon revealed that there was no growth, and both children upon examination showed, after a few weeks, developing rickets. The milk was then examined and was found deficient—fat 1.2 per cent., sugar 5 per cent., and proteid 0.73 per cent.

Signs of insufficient nursing.—The baby remains long at the breast, perhaps one-half to three-quarters of an hour. When removed, he is restless and uncomfortable. After a short time, in an hour or less, he is very hungry and demands frequent nursings day and night.

Management of abnormal milk conditions.—When it is found that the breast-milk is too strong or too weak, or when the normal ratios

of fat, sugar, and proteid are not maintained, it may be possible to increase or diminish the milk strength. It may also be possible to increase either the fat or the proteid when desirable. The heavy milk will usually be found in mothers who are robust, who eat heartily, and who take but little exercise. In such a mother, the prescribing of a plain diet, allowing red meat but once a day, discontinuing the malt liquors or wine—which it will often be found that she is taking,—and directing that she walk a mile or two a day, will frequently bring the milk to digestible proportions. In some cases, however, this will not be successful, and the colic, constipation, and vomiting continue, even though the quantity obtained at each nursing is within normal limits. In some mothers it will be impossible to change the mode of life, except perhaps as to the discontinuance of alcohol. When such conditions prevail, the mother's milk may be modified by giving from one-half to one ounce of boiled water or plain barley-water before each nursing. This is a procedure to which I frequently resort. One teaspoonful of lime-water added to one ounce of water before each nursing has

made the breast-milk agree when otherwise it would have been impossible. When the milk is deficient both in fat and proteid, a diet composed largely of red meat, poultry, fish, rye bread, or whole-wheat bread, oat-meal, cornmeal, with two or three pints of milk daily, will often be followed by an increase both in fat and proteid. The use of alcohol in moderate amounts, in the form of malt liquors or wine, will usually increase the fat. I have frequently seen it advance 2 per cent. in from two to three days. Disappointments in improving the quantity or quality of the breast-milk, however, are frequent.

In addition to the one bottle which, for reasons above mentioned, is given early in the child's life, I find it necessary at the seventh month to add an extra bottle or two. Usually at this time the proteid in human milk begins to diminish in quantity, and as this is the most important nutritional element, an insufficient quantity at this rapidly growing period of life is a matter of no little importance. At the twelfth month, with very few exceptions, my nursing babies are weaned from necessity. At this age exclu-

sive nursings, if one considers the best interests of the child, are practically out of the question. Out of many thousands of mothers I recall but one instance where a mother was able successfully to nurse her child after the twelfth month. This remarkable woman, the mother of six children, had nursed every one of them exclusively and successfully up to the fifteenth or the eighteenth month.

Mixed feeding.—With a diminution in the amount of milk secreted, the breast milk, must, of course, be supplemented by modified cow's milk. This method of feeding is usually successful. If the mother of a six-months-old baby can satisfactorily nurse him three times in twenty-four hours, he is given, in addition, three bottle-feedings in the twenty-four hours, in this way supplementing the mother's milk. It is best when using mixed feedings to alternate the breast and the bottle. The modified milk strength should be that which is suitable for the average child of his age. (See *Infant Feeding*, page 54.) In beginning the use of cow's milk, however, it must be remembered that at first a weaker strength must be used than

the child will require for growth, this weaker food being necessary in order gradually to accustom him to the change of food. If too strong a cow's-milk mixture is given at first, it will be very apt to disagree, causing colic and vomiting. Later, when the child has become accustomed to the new food, a stronger mixture may be given. When a mother cannot give her infant at least two satisfactory breast-feedings daily, it is better to wean the child.

Maternal conditions under which nursing is forbidden.—When the mother has tuberculosis in any of its various forms or manifestations, whether it involves the glands, the joints, or the lungs, breast-feeding is to be forbidden. In epilepsy and syphilis nursing is likewise forbidden. In nephritis and malignant disease of any nature, and in chorea, nursing should be discontinued. Women who are rapidly losing weight should not continue nursing their infants. In case of serious illness of any nature, such as typhoid fever, pneumonia, or diphtheria, and upon the advent of pregnancy, nursing should be stopped.

Conditions which may temporarily pro-

duce an unfavorable effect upon the breast-milk, but not necessitate the discontinuance of nursing.—The advent of the first menstruation period particularly, and in some cases of every menstruation period, is attended with an attack of colic or indigestion on the part of the child, rarely sufficient, however, to necessitate the discontinuance of the nursing even for a single day.

Factors influencing the mental conditions of the mother, such as anger, fright, worry, shock, distress, sorrow, or the witnessing of an accident, may affect the milk secretion sufficiently to cause no little discomfort to the child, and oftentimes the temporary lessening of the flow for a day or two. The influence of the mental state upon the character of the milk was early brought to my attention while resident physician at the Country Branch of the New York Infant Asylum. In this institution there were usually about two hundred nursing mothers, the majority of them from the lower walks of life, at least 95 per cent. of the infants being illegitimate. The necessity of placing a considerable number of these mothers in wards, and their living thus in close contact,

gave rise to rather frequent disputes, and not infrequently to fistic encounters of a decidedly vigorous character. After a particularly active disturbance, several nursing infants in the ward would be taken suddenly ill, usually with vomiting, diarrhœa, and fever. When two or more infants were thus discovered ill, we soon learned to know the cause when inquiry or evidence furnished by hasty inspection of the mother showed that she had been particularly active in the affair. A small proportion of the mothers were from the better walks of life. Letters of forgiveness or reproach or visits of a like nature from fathers, mothers, or sisters, have brought many a sick baby to my attention and caused me many anxious moments.

Conditions which call for temporary discontinuance of nursing.—During an acute illness with fever, such as indigestion, tonsillitis, and minor illnesses of a like nature, nursing should be discontinued for a day or two. When the infant is removed from the breast, it should be our effort to maintain the flow of milk. This is best done by emptying the breast with a breast-pump (page 46) at the usual nursing period until the time

arrives when the nursing may be resumed. In such conditions the advantage of having the baby accustomed to one bottle a day will at once be appreciated.

Care of the nipples.—Six hours after delivery or confinement, the nipples should be washed with a saturated solution of boric acid and the child put to the breast and nursing attempted. After this, the attempts at nursing should be repeated

every four hours, although the milk does not appear in the breasts until from forty-eight to seventy-two hours after the birth of the child. Colostrum may be present, which is useful as a laxative and may satisfy the child. A further advantage of the nursing at



FIG. 2. NIPPLE-SHIELD

this time is that it gradually accustoms both the nipple and the infant to what will be required of them later. Immediately after the nursing the nipple should be carefully washed with a saturated solution of boric acid and thoroughly but gently dried. A baby should

never be allowed to nurse on a cracked or fissured nipple. For this very painful condition a nipple-shield (Fig. 2) should always be used.

Giving of water.—From one-half to one ounce of a 1 per cent. solution of milk-sugar should be given the infant every two hours until the milk appears in the breast. Otherwise there will be unnecessary loss in weight and perhaps a high degree of fever due to inanition.

If the child is restless and uncomfortable, it is safe to conclude that he is thirsty, and one ounce of the sugar-water will usually satisfy him. With the commencement of nursing, accustom the baby to getting his food at regular intervals.

Frequency of nursings.—The new-born infant is entitled to ten nursings in twenty-four hours. From 6 A.M. to 10 P.M., inclusive, there should be nine nursings. There may be one nursing at 2 or 3 A.M. As the child becomes older less frequent nursings are required. The following table will be found useful in this connection:

Third to the twenty-first day.	10	nursings.
Third to the sixth week.	9	“
Six to the twelfth week.	8	“

Third to the fifth month.....	7	nursings.
Fifth to the seventh month.....	6-7	“
Seventh to the twelfth month.....	5-6	“

THE WET-NURSE

We are called upon to select a wet-nurse under various conditions. In a few families, particularly in those who have had disastrous feeding experiences, we are asked that no attempts at artificial feeding be made, but that a wet-nurse be engaged in advance of the confinement so as to be ready when the time for her service arrives. Usually, however, our minds turn to the wet-nurse when nutrition by other methods is a failure. It is well to remember in this connection that it is not wise to postpone our resort to the wet-nurse too long—until every chance for her being of assistance has passed. It may take a few days' observation or but a single glance at one of these difficult feeding cases for us to decide whether a wet-nurse must be secured. Certain it is that in a few cases we cannot do without them. I see perhaps two or three cases a year, usually in consultation, in which I insist that further attempts at artificial feeding be discontinued because of the reduced condition of the patient.

In the selection of a wet-nurse the age during which nursing is most successfully carried on is to be remembered. Other things being equal, a wet-nurse should not be under twenty-two or over thirty-five years of age. The peasant women of the continent of Europe make the best wet-nurses. A woman should not be selected as a wet-nurse without a thorough examination both of herself and of her infant. She must be free from skin diseases, tuberculosis, and syphilis. Whether she is stout or thin, tall or short, amounts to little. Neither can we place much reliance on the size of her breasts. Although full, firm breasts and prominent nipples are desirable, the best indication as to her nursing ability is the condition of her baby. For this reason it is best not to select a woman before her baby is four weeks old, for by that time his physical condition will indicate with considerable accuracy the kind of food he has been getting. The age of the wet-nurse's milk need not correspond with the age of the patient for whom she is engaged. As far as age is concerned, a breast-milk from four weeks to three months old will answer for any infant.

The results attending the first few days of wet-nursing are often most disappointing. The radical change which takes place in the nurse's habits of life, the leaving of her own child to the care of others, sometimes produces nervous conditions which may have a decidedly unfavorable influence upon her milk. So before arriving at the conclusion that she will not answer in a given case, she should have time to adjust herself to the changed conditions. Many a good wet-nurse has been ruined, so far as her usefulness as a milk-producer is concerned, by over-indulgence at the table. She has been accustomed to a very plain diet and some work, which necessarily means exercise. Upon assuming her new office she is temporarily the most important member of the household, next to the baby, and articles of food are supplied to which she is entirely unaccustomed and of which she eats plentifully. The result is an attack of indigestion with fever, the baby is made ill, and the usefulness of the wet-nurse in the family ceases. These women usually do best upon a plain diet of meat, poultry, fish, vegetables, cereals, and milk. If they are accustomed to taking

beer, one bottle daily may be permitted. Coffee may be allowed to the extent of one cup daily, and of tea not more than two cups should be allowed. Women of this class are almost invariably neglectful of the bowel function, so that this must be attended to. *One free evacuation should take place daily.* As a rule, the wet-nurse has been accustomed to work and will be more contented and happy when her time is occupied. Being out-of-doors from three to four hours a day is of decided advantage to every nursing woman. If she possess sufficient intelligence to take the baby for his outings, she should be allowed to do so. For the comfort of the family, it is wise not to let a wet-nurse know her full value. When she feels that she is indispensable, trouble is apt to follow from one source or another. It is particularly necessary, therefore, that babies that are wet-nursed should be given one bottle-feeding daily as soon as they are able to take care of it. The wet-nurse will then realize that she can be dispensed with in case of misconduct, or if she leaves with an hour's notice the child can be given the bottle until another nurse is secured. In the great majority of

my cases it has not been necessary to continue the wet-nursing after the children are seven months of age, for by this time they can usually be fed on the bottle. Of course, unless her nursing proves unsatisfactory, a wet-nurse should not be dismissed at the commencement of or during the summer.

CARE OF THE BREASTS AND NIPPLES

After nursing is well established the baby should be nursed at about two-hour intervals during the day. From 6 A.M. to 11 P.M. there should be nine nursings. If he sleeps between 11 P.M. and 6 A.M. do not wake him. One feeding at 2.30 A.M. is required by a few children up to the third month; the great majority, however, do better without it. Before and after each nursing the mother's nipples should be gently washed with a saturated solution of boracic acid, using either clean old linen or absorbent cotton. The nipples should be thoroughly dried after the washing.

Nursing is often most painful on account of cracks and fissures in the nipples. These are very apt to occur if the parts are neglected, and the resulting pain when the child nurses is unbearable, necessitating some-

46 Care of the Breasts and Nipples

times the discontinuance of the breast-feeding. The baby should never be allowed to touch a cracked or fissured nipple, and a nipple-shield (see Fig. 2) should be used until the parts are healed. Some babies take very unkindly to the nipple-shield, and often a great deal of patience must be exercised before they can be taught its use. If the shield suggested does not answer, others may be tried. The breast should never be al-

lowed to become hard or painful. If the child does not take enough to keep the breasts soft a breast-pump should be used to remove the remainder. For this purpose, the so-called English breast-pump (see Fig. 3) is the best. With the first rush of milk to the breasts it is often very difficult to prevent hard, painful nodules from forming in



FIG. 2. NIPPLE-SHIELD

the glands. The free use of the breast-pump and massage with warm oil, if properly carried out, will prevent the formation of an abscess.

When the breasts are large and pendulous,

a support consisting of a bandage firmly applied around the chest will often afford much comfort and prevent serious trouble. In addition to the use of the nipple-shield, the cracked nipple should be washed with a saturated boracic-acid solution after each nursing, and dried, when a soothing ointment may be applied on old linen; such an ointment, composed of ichthyol fifteen grains, vaseline one-half ounce, oxide-of-zinc ointment one-half ounce, has given most satisfactory results. The ointment should be carefully removed with warm sweet-oil and the nipple washed in alcohol before the next nursing. When the fissures are healed, the nursing may be resumed, allowing the child for a few days to take the nipple every second or third nursing, thus gradually accustoming the nipples to the rough usage.

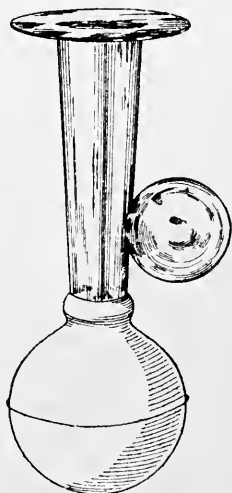


FIG. 3. ENGLISH BREAST-PUMP

WEANING

When is the nursing baby to be given other food, or how long can the breast be relied upon to furnish the child its sole nourishment? If the mother, unassisted, is able to nourish her infant completely until it is seven months of age, she is doing remarkably well. There are very few nursing mothers who can pass that period without assistance. Perhaps one or two bottle-feedings a day may suffice. In many cases the milk will fail about the seventh month, and absolute weaning be necessary. Granting, however, that the child is thriving on the breast alone, or doing satisfactorily on the breast with only two daily feedings, at what age should the weaning take place? I have known just one mother out of several thousand who could nurse her child to the child's advantage after twelve months had passed. I have seen many pronounced cases of malnutrition and rickets due directly to prolonged nursing. Indigestion and diarrhoea are often the outcome of prolonged breast-feeding.

The weaning in health should begin not later than the twelfth month. It is best

accomplished gradually by substituting bottle-feeding for nursing, giving only one bottle the first day, two the second, three the third, and so on until in a week or ten days weaning is complete. In case the child is ill we may be obliged to wean at once, when bottle-feeding is substituted for the breast, but the milk formula corresponding to his age should not be given. To a child six months of age give the three-months' formula; a child nine months of age should receive the six-months' formula. A gradual increase to the formula suggested for a child the age of the patient may be made if all goes well. After the ninth month it is often possible to feed from a cup, which is then to be preferred to bottle-feeding as a substitute for the breast.

Care of breasts during weaning.—When the breast-feeding is carried on the usual length of time—from nine to twelve months,—the process of weaning ordinarily causes little or no discomfort. All that is usually required is to press out enough of the milk to relieve the patient as often as the breast becomes painful, which may not be more than two or three times a day. When the weaning is

necessarily abrupt, no little discomfort may result. If there is a free flow of milk, which is apt to be the case when the weaning must take place in the early nursing period, tightly bandaging the breasts is required. When localized hardened areas occur in the glands, they should be massaged until softened, and the bandage reapplied and worn until the secretion ceases. When the weaning can more gradually be done, the best way is to give one less nursing every second or third day until only two are given. After this has been practised for one week, these also can be discontinued. In cases where sudden weaning is required, a saline laxative, such as citrate of magnesia or Rochelle salts, should be given every day for five days—sufficient to produce two or three watery evacuations daily. In the meantime the mother should abstain from fluids of all kinds up to the point of positive discomfort.

THE SELECTION OF MILK

The selection of the milk on which the baby is to live is a matter of no little importance. There is a vast difference in the quality and

cleanliness of the milks on the market. Too many mothers look upon all milk as being of uniform value because it all has a similar appearance. While the general character of the milk sold has improved greatly as regards cleanliness during the past few years, a great deal of that used at the present time is unfit for food for a baby. New York City mothers should insist that the milk used be bottled and sealed at the farm, and also insist that it be certified by the New York Milk Commission. Milk if properly produced is expensive; it cannot be sold for six or eight cents a quart, and mothers will have to pay more than this if they get a suitable article. The most expensive milk will, as a rule, be found safest for use.

When certified milk or one of the higher-class milks is not obtainable, as is the case with those whose home is in the country, and for the families from the larger cities who spend the summer months in more or less remote country districts, the matter of securing a safe milk is of vital importance. The average farmer is notoriously careless in the handling of milk, and in the country districts, where the milk supply should be the

best, it is often as bad as can well be imagined. In the country, where the milk is furnished by the farmer direct, a special arrangement may be made, by which he agrees: that the cow's belly, udder, and teats shall be wiped off with a damp cloth before milking; that the milker's hands shall be washed before milking; that the few jets of the fore-milk shall be thrown away; and that as soon as the milk is drawn it shall be strained through absorbent cotton into a quart milk bottle, suitably corked, and placed in a pail of cracked ice. The cracked ice and the absorbent cotton, are, of course, furnished by the consumer. For the extra trouble the farmer receives from twelve to twenty cents a quart for the milk. The improved milk-pail with the small top opening insures a much cleaner milk, as it offers much less opportunity for droppings to fall into it during the milking.

For those who have country homes and who can control their milk-supply, the above precautions may be carried out to the letter. By such careful control of the home product, and by the use of milk from those dairies only which observe the above precautions,

the acute digestive disorders of summer among my patients are rendered a very unusual occurrence. These precautions, with the knowledge of the mother or nurse as to what to do at the first sign of a digestive disorder, will reduce the number of the so-called summer diarrhoea cases to a very insignificant figure.

A further and very essential requirement is that all cows used for furnishing milk to infants be tested for tuberculosis every six months.

THE NURSING-BOTTLE AND NIPPLE

There are two requirements that a nursing-bottle must fulfil: It must have a capacity sufficient for one full feeding, and it must be so constructed as to be readily cleansed. The oval bottle (Fig. 4) with rounded edges answers best. These may be obtained in sizes of from three to nine ounces. As many bottles are needed as there are feedings in twenty-four hours. The bottles should be boiled once a day, scrubbed with a stiff brush, with hot borax water, and remain in the borax water until needed. Two teaspoon-

fuls of borax to a pint of water is the strength usually used. Before using, bottles should be rinsed in plain boiled water. The straight,



FIG. 4. NURS-
ING BOTTLE AND
NIPPLE

black nipple (Fig. 4) is also preferred, for the reason that it can be turned inside out and easily cleansed. A nipple which cannot be turned should never be used. After using, a nipple should be turned and scrubbed with a stiff brush and borax water—a tablespoonful of borax to a pint of water. When not in use, the nipple should be kept in borax water. Before placing it on the bottle it should be rinsed in boiled water. The nipples should be boiled once a day. The blind nipples—those without holes—are the best. Holes of the required size may be made with a red-hot cambric needle.

ARTIFICIAL FEEDING

BOTTLE-FEEDING

When it is decided that the child will have

to be nourished by other means than the breast, we are obliged to furnish a suitable substitute for the mother's milk which the child has a right to demand. In our selection we must be guided by Nature and furnish a food that will correspond as closely as possible to the mother's milk. This can be done only by the use of cows' milk properly prepared and diluted. Proprietary foods and condensed milk furnish very poor substitutes, as will be seen under their respective headings elsewhere. Cows' milk differs from mother's milk in its most important constituents. Good cows' milk contains primarily 3.50 to 4 per cent. of fat, 3.50 to 4 per cent. of proteid, and 4 to 5 per cent. of sugar. Mother's milk on the other hand contains 3.5 to 4 per cent. of fat, 1.5 per cent. of proteid, and 7 per cent. of sugar. It will be seen that cows' milk contains more proteid (curd) and less sugar than is contained in mother's milk. We must endeavor to make the proportion of the important constituents of cows' milk—the fat, proteid, and sugar—correspond to that of mother's milk. This has given rise to the term *modified milk*. Cows' milk is made to correspond to that of the mother by

diluting it with water to reduce the proteid, and then by adding cream and milk-sugar to bring up the fat and sugar to the required strength.

The term *modified milk* is not a good one, for the term "modified" does not cover all that is done in rendering cows' milk a suitable diet, that is, changing it to correspond to mothers' milk. We would have very little success in infant feeding if this were all we did. The milk must be adapted to a child's age and peculiarities, so that the term *adapted milk* expresses far better what we wish to accomplish. In adapting milk to an infant, we must remember that cows'-milk proteid (curd) is more difficult to digest than the proteid of mothers' milk, and that frequently a smaller amount of fat must be given than is contained in mothers' milk. Particularly must these precautions be observed in the very young and delicate. The gravest error, and one most frequently made in cows'-milk feeding, is that of giving the food too strong, at the beginning. In consequence, the digestive organs are overtaxed, the child vomits, has colic, suffers from constipation or diarrhoea, and, of course, cannot thrive; cows' milk is

therefore discarded because it did not agree with the baby, while it was not the milk but the way it was given that was at fault. In the feeding formulas given below, the milk is adapted to the various ages of infancy and not to the child's condition, as that would obviously be impossible. These formulas will be found suitable for *average* infants in fair health. In the matter of feeding, every child is a law unto himself and he must be fed individually. For some babies the formulas suggested will not answer at all. One six-months' child may require the nine-months' formula, while another may be able to take only the three-months' formula. All babies of the same age or weight must not be expected to thrive on food of exactly the same strength.

It is the duty of the physician to adapt the milk to the patient's digestive capacity by giving to each the required proportion of fat, proteids, and sugar. The signs of successful bottle-feeding are the same as of successful breast-feeding: comfort, sleep, and an average gain in weight of not less than four ounces a week. There should be two or three yellow stools daily.

The signs of unsuccessful feeding are vomiting, discomfort after feeding, habitual colic, green, undigested stools, and loss, or a very slight gain, in weight. A very few children cannot take cows' milk in any form. In this class belong those who have been badly managed. They have taken cows' milk too strong or otherwise improperly adapted. They may have undergone a series of hysterical changes with various proprietary meal foods in the hope that something might be found which would agree with them and on which they might thrive.

In some cases cows' milk of any strength produces colic and vomiting or more often diarrhœa. These difficult feeding cases, whether the result of the delicate or peculiar condition of the child *per se* or of improper feeding, require the greatest patience on the part of the physician and mother. Many of these cases must be seen by the physician every day for weeks before they can be brought to take a suitable diet. Milk in some must be temporarily discarded and substitutes, such as whey, diluted cream, barley-water, broths, or malt soups, have to be used. After a short time a very small

amount of milk may be added to the substitute which has been found best to agree. Should the milk again cause disturbance, condensed milk—one-half to one teaspoonful—may be given with barley water, increasing the amount of condensed milk gradually if it is found to agree. A wet-nurse is almost indispensable in some of these cases.

Preparation of food.

—One or two quart bottles of the best milk obtainable are required daily, depending upon the formula used. The milk, which is delivered at six or seven o'clock in the morning, is at once placed in a refrigerator

(at 50° F. or lower), where it remains for a few hours, until it is convenient to prepare the food. If the milk and cream formulas are used (page 61), one bottle furnishes the milk, the other the cream. The bottle which is to furnish the milk must

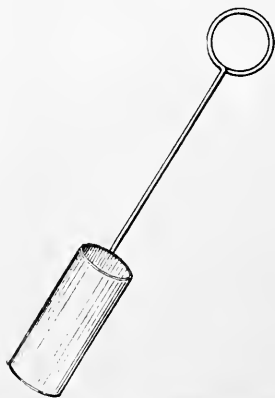


FIG. 5. THE CHAPIN DIPPER

be well shaken before using, so as thoroughly to mix the milk and cream. In the event of using the top-milk formulas (page 65), one bottle daily only is required for several months. Skimmed milk should never be given to an infant excepting as ordered by a physician. Boiled water should always be

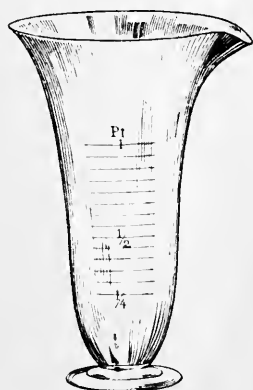


FIG. 6. ONE PINT GRADUATE

used. The milk-sugar should be dissolved in hot water before mixing with the milk or cream. The cream at the top of the bottle is known as "gravity cream." It should not be poured off nor should the milk be siphoned from under it. The same rule applies in using topmilk (page 65). The Chapin dipper (see Figure 5) furnishes the

best means of removing the cream or in obtaining top milk. The upper portion of the milk in the bottle is richer in fat than that lower down, therefore if only the upper dipper or two is removed it

gives a mixture too rich in fat. Such being the case, no matter how little cream or top milk may be required, all should be removed from the bottle as indicated in the formula used and placed in a clean pint graduate (see Fig. 6), which is to be used for all measuring purposes, and stirred a trifle to make it of uniform strength. If the required amount of cream or top milk cannot be obtained from one bottle, another pint or quart of milk should be purchased, but cream purchased as such should never be used for infant feeding.

Milk and cream feeding.—The following formulas for the different ages may be found useful for well babies:

From the first to the third day:

Milk-sugar.....	$\frac{1}{2}$ ounce.
Water.....	16 ounces.

One-fourth to one ounce every two or three hours.

From the third to the tenth day:

Gravity cream.....	$\frac{1}{2}$ ounce.
Milk.....	3 ounces.
Milk-sugar.....	1 ounce.
Lime-water.....	$\frac{1}{2}$ ounce.
Water to make	10 ounces.

Ten feedings in twenty-four hours; 1 to 1½ ounces at each feeding.

From the tenth to the twenty-first day:

Gravity cream.....	1¼ ounces.
Milk.....	5 ounces.
Milk-sugar	1½ ounces.
Lime-water	1½ ounces.
Water to make	24 ounces.

Ten feedings in twenty-four hours; 1½ to 2 ounces at each feeding.

From the third to the sixth week:

Gravity cream.....	2½ ounces.
Milk	8 ounces.
Milk-sugar.....	2 ounces.
Lime-water	2 ounces.
Water to make	32 ounces.

Nine feedings in twenty-four hours; 2 to 3 ounces at each feeding.

From the sixth week to the third month:

Gravity cream	3 ounces.
Milk	9 ounces.
Milk-sugar	2 ounces.
Lime-water	3 ounces.
Water to make	32 ounces.

Eight feedings in twenty-four hours; $2\frac{1}{2}$ to 4 ounces at each feeding.

From the third to the fifth month:

Gravity cream.....	4	ounces.
Milk	15	ounces.
Milk-sugar.....	$2\frac{1}{2}$	ounces.
Lime-water.....	4	ounces.
Water to make.....	40	ounces.

Eight feedings in twenty-four hours; 4 to 5 ounces at each feeding.

From the fifth to the seventh month:

Gravity cream.....	5	ounces.
Milk	18	ounces.
Milk-sugar.....	$2\frac{1}{2}$	ounces.
Lime-water.....	5	ounces.
Water to make.....	42	ounces.

Six to seven feedings in twenty-four hours; 5 to 7 ounces at each feeding.

After the fifth month it is my custom to add from one to three teaspoonfuls of a cereal jelly to each feeding. This may be added to the milk mixture when it is made in the morning. Thus, if one teaspoonful is to be given at each feeding in a case which is get-

ting six feedings, six teaspoonfuls of the jelly may be added to the entire quantity.

From the seventh to the ninth month:

Gravity cream.....	6	ounces.
Milk.....	23	ounces.
Milk-sugar.....	2½	ounces.
Lime-water.....	6	ounces.
Water to make.....	48	ounces.

Five to six feedings in twenty-four hours; 6 to 8 ounces at each feeding.

From the ninth to the twelfth month:

Gravity cream.....	7	ounces.
Milk.....	32	ounces.
Milk-sugar.....	3	ounces.
Lime-water.....	6	ounces.
Water to make.....	56	ounces.

Five to six feedings in twenty-four hours; 7 to 9 ounces at each feeding.

The use of top milk is preferred by many as it necessitates the purchase of but one bottle of milk during the early months of life. Other than this it possesses no advantages over the milk and gravity cream feeding.

Top-milk feeding.—In using top milk for infant feeding the milk is allowed to stand in a quart bottle at a temperature of 45° to 50° F. for the same length of time as when gravity cream is desired—five hours—when certain amounts from the top of the bottle are removed with a Chapin dipper (Fig. 5) and diluted with different quantities of water or gruel to which sugar of milk and lime-water are added. The milk selected should be the cleanest obtainable from grade cows; usually the most expensive is the best. If so-called “certified milk” (page 51) is obtainable, it should be used, as this warrants a cleaner food than that furnished by the usual market milks.

From a quart bottle of milk in which the cream has risen, dip off from the top with a Chapin dipper sixteen ounces and mix. From average milk this should contain:

- 7.0 per cent. fat;
- 3.2 per cent. sugar;
- 3.2 per cent. proteid.

The following formulas are suggested for the various ages noted:

Artificial Feeding

From the third to the tenth day:

Top milk.....	3	ounces.
Milk-sugar.....	1	ounce.
Lime-water.....	$\frac{1}{2}$	ounce..
Water to make.....	16	ounces.

Ten feedings in twenty-four hours; 1 to $1\frac{1}{2}$ ounces at each feeding.

From the tenth to the twenty-first day:

Top milk.....	6	ounces.
Milk-sugar.....	$1\frac{1}{2}$	ounces.
Lime-water.....	$1\frac{1}{2}$	ounces.
Water to make.....	24	ounces.

Ten feedings in twenty-four hours; $1\frac{1}{2}$ to 2 ounces at each feeding.

From the third to the sixth week:

Top milk.....	10	ounces.
Milk-sugar.....	2	ounces.
Lime-water.....	$2\frac{1}{2}$	ounces.
Water to make.....	32	ounces.

Nine feedings in twenty-four hours; 2 to 3 ounces at each feeding.

From the sixth week to the third month:

Top milk.....	12	ounces.
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Milk-sugar.....	2	ounces.
Lime-water.....	3	ounces.
Water to make.....	32	ounces.

Eight feedings in twenty-four hours; $2\frac{1}{2}$ to 4 ounces at each feeding.

From the third to the fifth month:

Top milk.....	18	ounces.
Milk-sugar.....	$2\frac{1}{2}$	ounces.
Lime-water.....	4	ounces.
Water to make.....	40	ounces.

Eight feedings in twenty-four hours; 4 to 5 ounces at each feeding.

From the fifth to the seventh month:

After this age two bottles of milk are required, 16 ounces being taken from the top of each bottle and mixed. The same rule applies here as to the addition of cereals found on page 63.

Top milk.....	21	ounces.
Milk-sugar.....	$2\frac{1}{2}$	ounces.
Lime-water.....	5	ounces.
Water to make.....	42	ounces.

Six to seven feedings in twenty-four hours; 5 to 7 ounces at each feeding.

From the seventh to the ninth month:

Top milk.....	27	ounces.
Milk-sugar.....	2½	ounces.
Lime-water.....	6	ounces.
Water to make.....	48	ounces.

Five to six feedings in twenty-four hours; 6 to 8 ounces at each feeding.

From the ninth to the twelfth month:

Top milk.....	35	ounces.
Milk-sugar.....	3	ounces.
Lime-water.....	6	ounces.
Water to make.....	56	ounces.

Five to six feedings in twenty-four hours; 7 to 9 ounces at each feeding.

After the twelfth month, plain cows' milk may be given with the cereal jelly in addition to the other articles of diet suggested for a child one year old. (See page 73.)

The cereal jellies are made by boiling the cereal selected for three hours. It will be noticed that considerable latitude is allowed as to the amount of food which is to be given at one feeding. This is because of the difference in the capacity of individual children.

After the third month the midnight feeding should be discontinued. Seven feedings will be sufficient, the first at 6 A.M. and the last at 10.30 or 11 P.M. Between 11 P.M. and 6 A.M. the child should sleep. Babies are easily broken from the night bottle by substituting a bottle of boiled water or a milk mixture greatly diluted with water. The child soon discovers that this is not worth waking for. As a result of a full night's rest the digestive organs are better able to do their work, the appetite is increased, and a larger amount of food may be given at each feeding.

The foregoing formulas will be found useful for the majority of average well babies. Those with pronounced digestive peculiarities should have the food especially adapted.

When the milk does not agree the cause must be discovered. The food as a whole may be too strong, when there will be indigestion and colic, and possibly diarrhoea and vomiting. If the food contains too much cream there will be looseness of the bowels, and colicky stools, with considerable straining; there is apt to be regurgitation also. The sugar is rarely a cause of trouble, an indication of excess being the eructation of

gas and a regurgitation of sour, watery material. It is comparatively rare, however, for the fat and sugar to cause any disturbance if they are given with any degree of intelligence; but the proteid—the curd-forming element in cows' milk—often gives us no end of trouble. Many infants, as previously stated, are able to digest only a very weak cows'-milk proteid; consequently, at the beginning of cows'-milk feeding, when, as is often the case, too much milk is used,—too strong a food given,—the result is always disastrous. This, with too frequent feeding and night feeding, comprise the chief errors made in cows'-milk feeding; in fact, they are the cause of more bottle-feeding failures than all other factors combined. Excess of cows'-milk proteid is the cause of habitual colic, and is an important element in habitual constipation. Chronic indigestion, as shown by vomiting and undigested green stools, is most frequently due to this cause. We frequently see children who cannot take cows' milk in any form; they must be given cream diluted either with plain boiled water or with a cereal water to which milk-sugar or cane-sugar has been added.

STERILIZATION AND PASTEURIZATION
OF MILK

Sterilized milk is rarely used at the present time in routine feeding. Milk is said to be *sterilized* when it has been heated to the boiling point, 212° F., and kept at this point for thirty minutes.

Pasteurized milk is milk heated to 155° F. and kept at this temperature for thirty minutes. In heating the milk we have two objects in view: to kill the harmful microorganisms which it may contain, and to keep the milk sweet for a longer time than would otherwise be possible. The degree of heat to which the milk is subjected should depend upon the season of the year, the source of the supply, the age of the milk, and the digestive capacity of the child. The more the milk is heated the more difficult of digestion it becomes, and the more liable it is to produce constipation; so that, other things being equal, the less we heat the milk the better the nourishment we furnish to the child. In country districts where the cows are known to be healthy, and the milk clean and fresh, heating is unnecessary. In cities and large

towns, where the source of the milk may be unknown, and where it is from twenty-four to thirty-six hours old when it reaches the consumer, heating to a moderate degree is a safe procedure at any time of the year. Pasteurizing the milk kills most of the dangerous germs without materially affecting the diges-

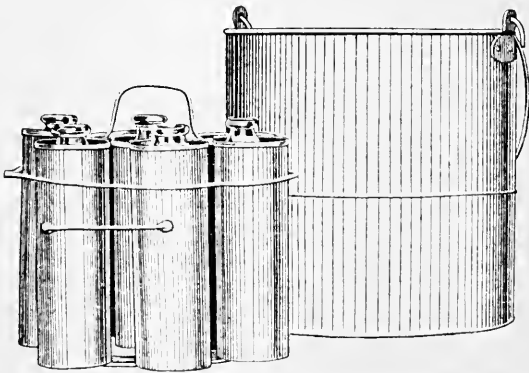


FIG. 7. FREEMAN PASTEURIZER WITH BOTTLE RACK REMOVED

tibility, or changing the taste of the milk. Among the intelligent and cleanly I advise the pasteurization of milk; among the ignorant poor and the careless,—such as we frequently see in out-patient work,—the milk should be boiled, particularly during the hot

months. The pasteurization of milk is best accomplished by the use of the Freeman Pasteurizer (see Fig. 7). Directions for use are furnished with the Pasteurizer.

If for any reason the Freeman Pasteurizer cannot be used, the milk may be heated in a double boiler. If this is not at hand an ordinary agate basin may be used. The vessel should be placed over a slow fire, with a milk thermometer held in the mixture. When the thermometer registers 170° F., remove the milk from the fire and pour it into as many bottles as there are feedings in the twenty-four hours. Absorbent cotton should be used for stoppers. The bottles should be cooled rapidly by placing them in cold water. The Freeman Pasteurizer should always be used if possible, for the reason that it saves much trouble, the temperature to which the milk is heated is uniform, it requires no manipulation of the milk after it has been prepared and heated, and there are no chances of the contamination of the milk from the air.

FEEDING AFTER THE FIRST YEAR

At the completion of the twelfth month

the average well-regulated baby should be weaned, and other nourishment given. If bottle-fed, he should receive more than the milk and cereals, with which most children are fed. The food suitable for the second year of life and the method of its preparation and administration are subjects upon which the masses are most profoundly ignorant. A few children at this period of life are underfed, but the great majority are overfed, and carelessly given, at improper intervals, unsuitable food, wretchedly cooked. Summer diarrhœa finds its greatest number of victims among those children over twelve months of age who have been carelessly fed. The dreaded "second summer" robs many homes because of ignorant or careless parents. The second summer managed properly is hardly more dangerous than any other summer during the early years of a child's life. It is almost a universal custom when the child is weaned or given something other than a milk diet, to allow him "tastes" from the table. Very often these tastes comprise the entire dietary of the adult. Milk is oftentimes the only suitable article of diet that is given. Afterward not only is the other food selected

unsuitable, but it is given irregularly, and supplemented by crackers kept on hand for use between meals. During the hot months the gastro-intestinal tract is less able to bear such abuse and the child becomes ill. Usually when the twelfth month is completed I give the mother a diet schedule, with instructions to begin gradually with the articles allowed, in order to test the child's ability to digest them. Every new article of food should be carefully prepared and given at first in very small quantities. All meals are to be given regularly, with nothing between meals. With many children this expansion of the diet list is attended with considerable difficulty. They are thoroughly satisfied with the milk, and refuse all other forms of nourishment. In such cases time and patience are necessary at the feeding time. The more solid articles of diet should be given first, and the milk kept in the background.

Among the underfed seen at this period of life are those who were nursed too long or those who were kept for too long a time upon an exclusive milk diet. A great majority of the cases of malnutrition of the second year are seen in the exclusively milk-fed.

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They are pale, soft, flabby, badly nourished children.

The following is a diet schedule which I have employed for several years. Each mother is instructed to select, from the foods allowed, a suitable meal.

*From the twelfth to the fifteenth month:
five meals daily.*

7 A.M. Oatmeal, barley, or wheat jelly, one to two tablespoonfuls, in eight ounces of milk. (The jelly is made by cooking the cereal for three hours the day before it is wanted and straining through a colander.) Stale bread and butter or zwieback and butter.

9 A.M. The juice of an orange.

11 A.M. Scraped rare beef, one to three teaspoonfuls mixed with an equal quantity of bread-crumbs and moistened with beef-juice. Or a soft-boiled egg mixed with stale bread-crumbs; a piece of zwieback, and a half-pint of milk.

(Scraped beef is best obtained from round steak, cut thick and broiled over a brisk fire sufficiently to sear the outside. The steak

is then split with a sharp knife and the pulp scraped from the fibre.)

3 P.M. Beef, chicken, or mutton broth with rice or stale bread broken into the broth. Six ounces of milk, if wanted. Stale bread and butter or zwieback and butter. Many children at the above age will take and digest apple sauce and prune pulp; when these are given milk should be omitted.

6 P.M. Two tablespoonfuls of cereal jelly in eight ounces of milk; a piece of zwieback. Stale bread and butter or Huntley and Palmer breakfast biscuit.

10 P.M. A tablespoonful of cereal jelly in eight ounces of milk.

*From the fifteenth to the eighteenth month:
four meals daily.*

7 A.M. Oatmeal, hominy, cornmeal, each cooked three hours the day before they are used. When the cooking is completed the cereal should be of the consistency of a thin paste. This is strained through a colander which upon cooling will form a mass of jelly-like consistency. Of this give two or three tablespoonfuls served with milk and sugar or

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butter and sugar or butter and salt. Eight to ten ounces of milk as a drink. Zwieback or toast.

9 A.M. The juice of one orange.

11 A.M. A soft-boiled egg mixed with stale bread-crumbs, or one tablespoonful of scraped beef mixed with stale bread-crumbs and moistened with beef-juice. A drink of milk. Zwieback or bran biscuit, or stale bread and butter.

3 P.M. Mutton, chicken, or beef broth with rice or with stale bread broken in the broth. Custard, cornstarch, plain rice pudding, junket, stewed prunes, baked apple, or apple sauce.

6 P.M. Farina, cream of wheat, wheatena (each cooked two hours). Give from one to three tablespoonfuls served with milk and sugar or butter and sugar or salt and butter. Drink of milk. Zwieback or stale bread and butter.

*From the eighteenth to the twenty-fourth month:
four meals daily.*

7 A.M. Cornmeal, oatmeal, hominy (prepared as in the above schedule). Serve

with butter and sugar or milk and sugar or butter and salt. A soft-boiled egg every two or three days. Hashed chicken on toast occasionally. A drink of milk. Bran biscuit and butter, or stale bread and butter.

9 A.M. The juice of one orange.

11 A.M. Rare beef, minced or scraped, the heart of a lamb chop, finely cut. Chicken. Spinach, asparagus tips, squash, strained stewed tomatoes, stewed carrots, mashed cauliflower. Baked apple or apple sauce. A drink of milk. Stale bread and butter.

After the twenty-first month, baked potato and well-cooked string beans may be given.

2.30 P.M. Chicken, beef, or mutton broth with rice or with stale bread broken into the broth. Custard, cornstarch, or plain rice pudding, junket, stewed prunes. A drink of milk. Bran biscuit and butter or stale bread and butter.

6 P.M. Farina, cream of wheat, wheatena (each cooked two hours). Give from one to three tablespoonfuls served with milk and sugar or butter and sugar or salt and butter. Drink of milk. Zwieback or stale bread and butter.

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From the second to the third year: three meals daily.

Breakfast (7 to 8 o'clock).—Oatmeal, hominy, cracked wheat (each cooked three hours the day before they are used), served with milk and sugar or butter and sugar. A soft-boiled egg, a lamb chop, hashed chicken. Stale bread and butter. Bran biscuit and butter. A drink of milk.

At *ten o'clock* the juice of one orange may be given.

Dinner (12 o'clock).—Strained soups, and broths, rare beefsteak, rare roast beef, poultry, fish. Baked potato, peas, string beans, mashed cauliflower, mashed peas, strained stewed tomatoes, stewed carrots, spinach, asparagus tips. Bread and butter. A glass of milk. For dessert: plain rice pudding, plain bread pudding, stewed prunes, baked or stewed apple, junket, custard, or corn-starch.

Supper (5.30 to 6 o'clock).—Farina, cream of wheat, wheatena (each cooked two hours). Give from one to three tablespoonfuls served with milk and sugar or butter and sugar or butter and salt. Drink of milk. Zwieback

or stale bread and butter. Twice a week, custard or cornstarch or junket may be given or a tablespoonful of plain vanilla ice-cream.

As a rule, three meals answer best at this period. With three meals a child has better appetite and much better digestion, and consequently thrives far better than one whose stomach is kept constantly at work. Some children, however, will require a luncheon at 3 or 3.30 P.M., and will not do well without it. This is apt to be the case with delicate children, particularly those under two and one-half years of age. If food is necessary at this hour, a glass of milk and a graham biscuit, or a cup of broth and zwieback will answer every purpose. Instead of the afternoon meal, the child may relish a scraped raw apple or a pear. The fruit at this time is particularly to be advised if there is constipation. Children recovering from serious illness will require more frequent feeding.

From the third to the sixth year.

Breakfast.—Cracked wheat, cornmeal, hominy, oatmeal (each cooked three hours

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the day before they are used). These may be served with milk and sugar or butter and sugar or butter and salt. A soft-boiled egg, omelet, scrambled egg, chop. Bread and butter, bran biscuit and butter. A glass of milk.

Dinner.—Plain soups, rare roast beef, beefsteak, poultry, fish. Potatoes stewed with milk or baked. Peas, string beans, strained stewed tomatoes, stewed carrots, squash, boiled onions, mashed cauliflower, spinach, asparagus tips; bread and butter. For dessert: Rice pudding, plain bread pudding, custard, tapioca pudding, stewed prunes, stewed apples, baked apples, raw apples, pears and cherries.

Supper.—Farina, cream of wheat, wheatena (each cooked two hours). Give from two to three tablespoonfuls served with milk and sugar or butter and sugar or salt and butter. Zwieback or stale bread and butter. Bread and milk. Milk toast. Scrambled egg twice a week. Custard or cornstarch each once a week; ice-cream once a week; bread and butter. A glass of milk.

When the child has eggs for breakfast, they should not be repeated in any form for

supper. Red meat should be given but once a day. When the child has a chop for breakfast, he should have poultry or fish for dinner. At this age of great activity and rapid growth, the child will often demand food between dinner and supper. Carefully selected fruit, such as an apple, a pear, or a peach, may be given at this time, supplemented by a graham cracker or two, or by stale bread and butter, if it is found that their use does not interfere with the evening meal.

DIET AFTER THE SIXTH YEAR

When the normal child has passed the sixth year the diet may be considerably expanded, approximating to that of the adult in variety: certain restrictions, however, are to be borne in mind. Fried foods should not be given; highly seasoned dishes, such as pie, rich puddings, gravies, and sauces, are to be avoided. Salads with plain dressing may now be given. Wine and beer, coffee and tea, should never be given to children as a beverage. A point to be kept in mind in feeding children at this age, as well as those who are younger, is the proper cooking of

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vegetables. Everything in the line of green vegetables should be cooked until it can readily be mashed with a fork.

HOW THE CHILD SHOULD BE FED

In the foregoing articles on feeding the author has endeavored to suggest the nature of the food required by the growing child, and the intervals at which food should be given. This, however, does not entirely cover the subject. A child should never dine with adults until he can have adult diet, if the circumstances of the family will permit him to dine alone or with other children. It is a species of cruelty to expect a hungry child of tender age to sit at the table, see and smell the fragrant dishes, and be forced to content himself without complaint with his restricted fare. The author recalls this custom as a cause of many tears, disputes, and fistic encounters with attendants, which formed no small part of the daily routine of his early life.

In feeding, the spoon or fork must come in contact only with the food and the child's mouth; when not in use it should be allowed

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to rest on the clean table-cloth. If it falls to the floor by accident it should be dipped in boiling water before using it. Under no circumstances should a feeding utensil be allowed to come in contact with the lips of the nurse or mother; time and again I have seen mothers and nurses sip or swallow the first teaspoonful of the food which is to be given, to determine if it is of the proper temperature. At other times, when the food is not particularly attractive to the child, they will place the spoon in their mouths as though they intended to take it themselves. Others will remove from the spoon with their own lips adhering particles of food.

There are few more reprehensible practices than the foregoing, and if parents knew the dangers to which their children are thus subjected they would not for one instant tolerate them. Any one of the many forms of pathogenic bacteria may be most readily transferred to the mouth of the child in this way. It is unquestionably a means of infection with tuberculosis, diphtheria, and syphilis. The germs of tuberculosis and diphtheria are frequently found in the mouths of perfectly healthy adults. They cause no

symptoms of disease because of the normal power of resistance of such adults. The resisting powers of the child, however, to these micro-organisms are very slight, and when they are carried to the delicate mucous membrane of the infant's mouth and throat they thrive actively, the child develops diphtheria or tuberculosis, and the family grieve and wonder how the child could ever have contracted the disease.

CONDENSED MILK

Condensed milk should never be selected as a food for a baby if the mother can afford to buy cows' milk and can learn how to prepare and care for it. The child's natural food is the mother's milk; this is what he has a right to demand. If mothers' milk cannot be furnished we must give a substitute which will provide the baby with the nourishment contained in mothers' milk. Analyses by many chemists of thousands of samples of good mothers' milk show that it contains approximately 3.5% to 4% of fat, 1.5% of proteid, and 7% of sugar. Condensed milk, diluted one to twelve, *i.e.*, one

part condensed milk to twelve parts of water,—the strength taken by a three-months-old child,—will give a food containing .5% of fat and .6% of proteid, and 4% of sugar. Compare these figures with the amount of fat, sugar, and proteid contained in mothers' milk and it will readily be seen that the baby is not getting nearly as much nourishment as Nature would furnish him. If the mixture, using the condensed milk, is made in the proportion of one part condensed milk to eight parts of water—the proper strength for a six-months-old child—there will still be less than 1% of fat, and a lower proteid than in mothers' milk. Condensed milk has its uses, however. Many mothers cannot afford to buy fresh cows' milk. Some have no refrigerator or ice-box in which to keep it. Condensed milk, on account of the cane sugar which has been added to it, will remain fresh for two or three days after it has been opened. It is a most inexpensive means of feeding the baby. Further, its preparation is exceedingly simple, and many mothers are too ignorant to appreciate the importance of the careful preparation of cows' milk. That magnificent charity, the Straus Milk Labo-

ratory, which furnishes properly prepared milk at a minimum price, is available for comparatively few of the city's poor.

Condensed milk is for many an absolute necessity; but though children manage to live on it, they never thrive satisfactorily. They all show evidence of some degree of rickets, unless fat in some form, *e.g.*, cod-liver oil or cream, is given in addition, to supplement the food: and very few children can take cod-liver oil during the summer months. There is another class of children for whom condensed milk has served us well at various times. They are the young, delicate infants, with very weak digestive powers. Their mothers cannot nurse them, wet-nurses are impossible, and, for some reason, the smallest amount of cows' milk, most carefully adapted, cannot be tolerated; a single teaspoonful of milk or cream in two ounces of plain water, whey, weak milk-sugar water, or barley water produces colic and diarrhœa. I have successfully fed several of these infants on a mixture consisting of one part of condensed milk and twelve parts of water. I prefer the unsweetened variety. For some unexplained reason these children digest the

condensed milk without any inconvenience and do fairly well for a few weeks, when the secretion of the digestive juices will be better established and a weak adapted cows'-milk mixture will be borne. Condensed milk is also useful in travelling. During journeys by land and sea, condensed milk with boiled water will furnish satisfactory food for a limited time at a minimum amount of trouble.

The following formulæ may be found of service to those who for any reason are forced to use a temporary substitute for adapted cows' milk:

First month of life: 1 part of condensed milk to 16 of water.

Second month: 1 part of condensed milk to 14 of water.

Third month: 1 part of condensed milk to 12 of water.

Fourth to sixth month: 1 part of condensed milk to 10 of water.

After the sixth month: 1 part of condensed milk to from 8 to 10 of water.

These are all maximum strengths; for many cases a greater dilution will be required.

If a child is fed on condensed milk for a longer time than a week, cream or cod-liver oil should be given,—each feeding being supplemented by from one-half to two tea-spoonfuls of cream, or from ten to twenty drops of pure cod-liver oil.

THE PROPRIETARY FOODS

The foods on the market prepared for purposes of infant feeding are almost without number. From our knowledge of the composition of mothers' milk we learn what nutritional elements and approximately in what relative proportions these elements must exist in order to supply the child with the food which Nature intended him to have. The examination of the milk of thousands of nursing women shows that it ranges from 2.5 to 4 per cent. fat, 6 to 7 per cent. sugar, and 1 to 1.5 per cent. proteid. These figures may be put down as the normal limits of human milk, and they are so, simply because the infant will thrive and grow when the nutritional elements in approximately the above proportions are supplied to him. It is within these limits that the food must be kept in order that there may be normal

growth and development; though of course, wide variations from these may be of temporary occurrence. While the child may exist and temporarily do fairly well on a percentage of fat lower than 2.5, he will invariably show defective growth if the proteid remains persistently under 1 per cent. The chief disadvantage in the infant foods which are used without the addition of cows' milk, lies in the fact that they do not contain the nutritional elements as they exist in normal breast-milk, and besides, of necessity, they are all cooked foods.

In selecting a substitute for mothers' milk (page 54) one point is to be kept in mind, viz., the substitute should contain, in a readily assimilable form, the nutritional elements in approximately the proportions and forms in which they exist in mothers' milk. All other feeding is defective. It is not well to put too much reliance on the analysis sometimes published by the proprietary food manufacturer. This type of food is decidedly weak in animal fat, for the reason that there is no means of keeping more than a small percentage of it in a food without its becoming rancid. When

considerable percentages are indicated in the analysis it is certain that it does not consist of butter fat. The quantity of animal milk proteid is likewise deficient, and what is present has been cooked, thus detracting materially from its value in infant nutrition. Scurvy is not an infrequent result of the exclusive use of these foods.

The uses of proprietary dried-milk foods.— It is to be remembered that this type of food is condemned because of its being an unsuitable food when used exclusively and persistently. In constipation in “runabout” and older children who are on a general diet, the importance of milk in the nutrition is a secondary one, and is often an important factor in the production of constipation. In these cases cows’ milk may be replaced by one of the proprietary dried-milk foods which has a laxative effect, with a good deal of advantage. I sometimes employ them further in other disordered states. During acute illness and in convalescence from illness and in certain forms of malnutrition they are usually readily digested and may help us over difficult places.

Proprietary foods to which fresh cows’ milk

is added.—These are not foods in the usual acceptation of the term, and if they are used alone independent of milk the patient will soon present a sorry spectacle. They are sugars largely, being composed of maltose and dextrin, which are derived from starch. Some contain a considerable quantity of unconverted starch. When added to the water and milk mixtures they furnish the soluble carbohydrates in the form of maltose and free starch, and thus fulfil this function in the food with as good results as, but usually no better than, would milk-sugar and a cereal gruel. Maltose is a laxative sugar. In case of constipation in the bottle-fed it may replace the milk-sugar in equal quantity, and as such may be used with decided advantage in some cases. In other cases, this change to maltose is without effect. The claim that when added to cows' milk these proprietary foods increase the liability to scurvy is without foundation. If the milk is given uncooked, the child will not have scurvy, regardless of the nature of the sugar; if the milk is heated to 160° or 170° F., the child may have scurvy regardless of the sugar.

The exploiting of photographs of crowing,

fat, red-cheeked babies which are used to illustrate the supposed virtues of this or that manufacturer's food composed principally of maltose is not a very high-minded procedure on the part of the manufacturer who thus stoops to steal the credit which belongs to a cow! According to my observation, the statement that the addition of maltose to cows' milk facilitates its digestion is unfounded. I have tried it in many cases, but have never been able in consequence to use a stronger cows'-milk mixture, a higher proteid. The true test of such a measure is its use in the delicate and in difficult feeding cases, and not in well babies who thrive regardless of the sugar employed. The maltose preparations, then, in the sense that they may contain a small amount of proteid and a laxative sugar, are useful and to be recommended when such a carbohydrate is needed.

The proprietary beef foods.—Numerous preparations of this nature are on the market and there has been abundant opportunity to test their value. Without going into a lengthy discussion as to how and under what conditions these preparations have been used,

it is sufficient to say that as a means of nutrition in children they play a very unimportant part. Their principal use is in illness, in which they act as a stimulant, and to a less degree as a food. They all make weak proteid mixtures when diluted so that the child can take them. The possibility of supplying any great amount of nutrition to the economy by their use is small; occasionally, however, they may be used to advantage. When milk is withdrawn they may be added to the cereal gruel substitute. If there is diarrhœa, great care must be exercised, as the proprietary beef preparations as well as beef-juice may increase it. On account of the creatinin which they contain, they should not be given in any of the forms of nephritis. Another feature which limits their use is that a child soon tires of them. They can rarely be given more than two or three times in twenty-four hours. Valentine's is the preparation I usually select. It may be given in solution — one-quarter to one-half teaspoonful to six ounces of the diluent.

PEPTONIZED MILK

Milk is peptonized, or predigested, for the

purpose of partially or completely digesting the proteid, the curd, before it is given to the patient. As a means of assistance in making a milk food assimilable its field of usefulness is limited. So-called complete peptonization produces a product with a decidedly bitter taste, and but few children will take it. Peptonized milk, however, has other uses than as a means of daily feeding. Peptonized milk in which there is a complete conversion of the casein has been most useful in two types of cases. During acute or chronic illness when a child cannot take food by the natural method, as in diphtheritic paralysis, or when he will not swallow on account of an acute inflammatory disease of the throat such as peritonsillitis, retropharyngeal abscess, or retropharyngeal adenitis, or when he is in a comatose condition from any cause except intestinal infection, the feeding of completely peptonized milk by gavage, introducing it into the stomach through a tube, is of inestimable value. In such conditions, as a valuable aid in nutrition, frequent reference is made to it throughout this book. In conditions when stomach-feeding is impossible either by gavage or the natural method

—conditions met with in persistent vomiting due to acute cerebral diseases, in recurrent vomiting, in acute gastric indigestion—and as an accessory means of feeding when sufficient nourishment cannot be taken by the stomach, the colon-feeding of completely peptonized skimmed milk has a decided field of usefulness, and in this way I often employ it. Feeding by means of the bowel, however, is usually possible in children for a few days only, because of the local irritation produced by the nutriment and by the passage of the tube. Skimmed peptonized milk with the addition of the white of egg makes the best nutrient enema that I have used. It should be given at a temperature between 90° and 95° F. at from six- to eight-hour intervals. The tube should be introduced at least nine inches. In cases of recurrent vomiting I have repeatedly seen both hunger and thirst relieved by feeding in this way. The following are the different methods for the peptonization of milk.

Immediate process.—Fifteen minutes before feeding add from one-eighth to one-quarter of the contents of a Fairchild peptonizing tube to the milk mixture which is in the

nursing-bottle ready for use. Place the bottle in water at a temperature of from 110° to 120° F., and let it remain until fifteen minutes have elapsed. The amount of the powder used and the degree of heat of the water depend, of course, upon the amount of milk in the nursing-bottle.

Cold process.—Put four ounces of cold water into a clean quart bottle and dissolve in it, by shaking thoroughly, the powder contained in one of the Fairchild peptonizing tubes; add a pint of cold fresh milk, shake the bottle again, and immediately place it upon ice—directly in contact with it.

Partially peptonized milk.—Put four ounces of cold water and the powder contained in one of the Fairchild peptonizing tubes into a clean saucepan, and stir well; add a pint of cold fresh milk and heat with constant stirring to the boiling-point. The heat should be so applied that the milk will come to a boil in ten minutes. Let it cool until lukewarm, then strain into a clean bottle or glass jar, cork tightly, and keep in a cold place. The bottle or jar should always be well shaken before and after pouring out a portion.

Partially peptonized milk, if properly prepared, will not become bitter.

Completely peptonized milk.—Put four ounces of cold water and the powder contained in one of the Fairchild peptonizing tubes into a clean quart bottle and shake thoroughly; add a pint of cold fresh milk and shake again; then place the bottle in a pail or kettle of warm water—about 115° F., or not too hot to immerse the hand in it without discomfort. Keep the bottle in the water-bath for thirty minutes. Put it immediately upon ice—directly in contact with it.

MILK FOR TRAVELLING

In making long journeys with infants by land or water, the feeding of the child is an important matter, and advice is often sought by mothers who wish to make the contemplated trip with the least possible risk. It is, of course, desirable that no change be made in the milk commonly used, and there are means of treating the milk and of keeping it which enable us to assure the patient of reasonable safety. It is my custom with

city children to have the milk prepared at the Walker-Gordon Laboratory, where at a trifling expense small ice-boxes can be obtained which contain sufficient space for a few days' supply of milk and which can be conveniently carried on cars and boats. They have also larger boxes with a capacity of twelve quarts, which may be used for an ocean voyage. The smaller box will need refilling with ice once or twice a day, which is usually readily secured. The larger box, for ocean voyages, is packed in ice and placed in a cold-storage room of the vessel and will not need repacking during the trip. Laboratory milk, however, is available for comparatively few.

Milk prepared at home for a journey should be cooled to 45° F. as soon as it is drawn, and kept at this temperature until it can be sterilized at a temperature of 212° F. for twenty minutes. It then should be cooled rapidly to at least 50° F. and kept at this point until used. These directions can be carried out by any intelligent family. When this is done the milk will be safe for use for the time required—from seven to eight days. Even the suggestion as to the making of an ice-box

can be followed in any town or village. All that is required is the ice-box, one-quart fruit jars or one-quart milk bottles, and clean milk. Those who for any reason cannot avail themselves of the milk thus preserved will find in canned condensed milk a fairly good substitute. If kept on ice and wrapped in a clean towel, a can of condensed milk may safely be used for three days after opening. Formulas suited for the various months of infancy will be found in the section on Condensed Milk (page 89).

DIET DURING ILLNESS

The digestive capacity of every child is diminished during illness, depending largely upon the age of the child and the severity of the disease. The younger the child, the greater the incapacity. This is fairly constant with all the ailments of childhood, including, of course, those which directly affect the gastro-enteric tract. In a moderately severe bronchitis, with a degree or two of fever, the digestive capacity is slightly diminished and a 25 per cent. reduction in the strength of the food will answer. During

the critical stage of a lobar pneumonia the digestive powers are held in abeyance and predigested foods and alcohol must sustain the patient. During an attack of measles, scarlet fever, broncho-pneumonia, or diphtheria in bottle-fed infants, at the height of the disease, it is my custom to reduce the strength of the food one-half by the addition of water, to make up for the quantity removed. For ailments of lesser severity, such as bronchitis, with a temperature of 100° to 101° F., or chicken-pox, or mild measles, I reduce the strength of the food from one-fourth to one-third. In any mild ailment or injury which confines a child to its bed, the food strength should be cut down, for inactivity as well as disease lessens the digestive capacity.

Among nurslings and the bottle-fed these precautions are particularly necessary. A child with fever is apt to be thirsty and to take more food than in health. This is frequently the case in summer diarrhœa. In order to avoid this taking of too much food, I not only order the milk to be diluted for the bottle-fed, but I instruct the mothers of nurslings to give a drink of water immediately

before each nursing and between nursings, and then to allow the child to nurse only one-half or two-thirds the usual time. For the bottle-fed, one-half to two-thirds of the contents of each bottle is removed and the quantity replaced by boiled water, so that the amount of fluid given remains the same.

If the child is a "runabout," over two years of age, he is given broths and thin gruel—one-half milk and one-half gruel. By carefully watching the stools, thus fitting the food to the child's capacity, we will avoid grave intestinal complications which, during the summer, often prove to be more serious than the original ailment. In the acute gastro-enteric troubles, and in typhoid fever, all milk must be discontinued.

The art of feeding in illness.—Not only is food oftentimes taken in insufficient quantity in illness, but in many cases it is absolutely refused. In other cases, during coma and asthenic states, swallowing is impossible. In delirium and in conditions of collapse nourishment must be given, and when this is impossible by the natural method, we have, as temporary substitutes, gavage, oil

inunctions, and rectal feeding—all referred to elsewhere.

Forcing the child to take nourishment by the mouth is rarely necessary. Coaxing and bribing ordinarily succeed far better. For a child from three to five years of age a bright new penny possesses much persuasive power. The child will usually take its food better from those to whom it is accustomed, like the mother or nursery maid. The trained nurse should understand that while unacquainted with the patient, the simpler requirements of the child are to be looked after by others to whom the patient is accustomed. The nourishment should be as palatable as possible and served in bowls, cups, or plates that are attractive to the patient because of color, pictures, or peculiarities of shape. Junket, flavored with vanilla, served cold is a favorite food for sick children of the "runabout" age. Frozen custard, and home-made ice-cream, made with one-third cream and two-thirds milk, will usually be well taken. Toast, dry bread, and crackers made in peculiar shapes are attractive to the child. In not a few cases I have succeeded in feeding satisfactorily children two or three

years old, when several other schemes had failed, by allowing the temporary return to the bottle, from which they had been weaned for a year or so.

In these difficult feeding cases the child's peculiarities and wishes must be studied. Children in illness require water. Oftentimes they will take it in insufficient quantities. Those who refuse plain water will often take ginger ale, sarsaparilla, or vichy. In the event of these drinks being well taken, they may be given freely. In the acute infectious diseases, which include pneumonia, free water-drinking is a therapeutic measure of no mean value.

VOMITING

A sudden attack of vomiting may usher in any serious illness, with fever. Thus, it may be the initial symptom of pneumonia, scarlet fever, or meningitis. By far the most usual cause, however, will be found intimately connected with the stomach, usually an acute attack of indigestion. Bottle-fed children furnish the greatest number of patients, as these children are almost always

overfed, and more or less badly fed. With the onset of a sharp attack of vomiting, particularly if it occurs during hot weather, the milk diet should immediately be discontinued. Small quantities of boiled water, one-half to two ounces of barley water, or rice water, or plain broths may be given every hour or two. In the obstinate cases, quite a period of rest should be given the stomach. From twenty-four to thirty-six hours will often be necessary before the child will be able to retain even a teaspoonful of water. No milk should be given until the vomiting has ceased for at least two days. When the milk is resumed it should be diluted five or six times with water and at first only a small quantity of the mixture given. In many of these cases a stomach washing will speedily correct the trouble. If the stomach bears the food well its strength may gradually be increased by an additional half-ounce or ounce of milk to each feeding daily, until the former diet is resumed.

HABITUAL VOMITING

Many children regurgitate or vomit a por-

tion of every feeding. This means one thing always—the child has been or is overfed. He is given the food too strong, or the amount is greater than his capacity, or he is fed at too frequent intervals. In either case the stomach relieves itself. Many of these children who regurgitate after each feeding thrive finely in spite of the loss. Enough is retained for their nourishment, and they gradually become accustomed to the strong food and no serious harm results. Such a stomach, however, is liable to behave very badly during hot weather. During any illness, in fact, which taxes the patient's strength, the disordered stomach stands ready to furnish an unpleasant complication.

The treatment of habitual vomiting in the bottle-fed is by a suitable adaptation of the food and stomach washing. Among the breast-fed the breast-milk will have to be examined and, if found unsuitable, corrected if possible. If too frequent nursings or night nursings have been allowed they should be discontinued.

MALNUTRITION AND MARASMUS

By *malnutrition* we understand that con-

dition in which a child for some reason fails to gain in weight or loses steadily for a considerable period of time. Cases present all degrees of severity, from those in which there is merely a temporary loss of weight, to those of an extreme degree of malnutrition, which latter condition we term *marasmus*. A marasmatic infant presents one of the most pitiful pictures we are called to look upon: the dry skin drawn tightly over the fleshless bones, the sunken eye, the distended abdomen, the anxious, tired expression, and the whining cry furnish a picture of starvation so pathetic that only those hardened by long familiarity with such cases can look upon them unmoved.

When the history of such infants has been looked into it will be learned that errors in feeding contributed largely to bringing them to their woeful condition. Many of these children came into the world strong and vigorous, the mothers were unable to nurse them, and the food selected did not agree with them. Cows' milk, perhaps, was given, unsuitably adapted,—it usually is given too strong to young infants,—at any rate it disagreed, and the proprietary meal foods were brought into

use, one after another, as they were suggested by well-meaning friends, each to do its share of damage and in turn to be discarded. The stomach bore the ill-usage for a time, but soon became so disturbed that the digestion of rational food was out of the question. Many of these children finally reach the point where predigested foods fail to be assimilated; such cases, of course, are hopeless.

It is a source of amusement oftentimes to note the assurance with which laymen will advise a mother that such and such a food is the only one for the baby, when they possess neither the intelligence nor the training necessary to judge of the child's digestive peculiarities or capacity; in fact, they know no more of the child's requirements or the chemical composition of the food suggested, or even what should be the composition of the baby's food, than does the unfortunate babe itself.

If there is inherited weakness, or a low vitality from any cause, the downward course may be very rapid. There are two or three weeks of suffering, and then the end. If seen before the vital powers are at too low an ebb, these children, by very careful and intelligent

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management, can be saved. They should be handled only when necessary for dressing and bathing. The nourishment given must at first be very weak, and its effects carefully watched from day to day, the strength and amount of the food being increased or decreased, as may be found necessary. A brine bath should be given daily,—a tablespoonful of salt to a gallon of water. The temperature of the water should be 100° to 105° F. The child should remain in the water ten minutes, being rubbed well with the hand while in the water. When removed, it should be placed in a large bath towel and dried quickly. When dry, rub one tablespoonful of unsalted lard or goose-grease into the skin. Flannel should be worn next to the skin except during very warm summer weather.

Marasmatic children when sleeping should not be allowed to remain long in one position; they should frequently be turned from the back to the side, and from one side to the other. A hot-water bottle to the feet will often be necessary when sleeping. To a child suffering from malnutrition, fresh air is as indispensable as food. During the warm weather if he can be protected from the sun

the child should be kept out of doors from morning until night. During the entire year he should sleep with the window open. During the winter months he should be taken out of doors for at least one-half hour every pleasant day. When, on account of the inclement weather or excessive cold, he cannot go out, he should be dressed as for the daily outing, taken into a room all the windows of which have been open for at least one-half hour; here, placed in a baby-carriage and warmly covered, with a hot-water bottle at his feet, he is allowed to enjoy the fresh air for several hours each day. This brightens the eye, brings color to the cheek, and an invigorated baby returns to the nursery.

SUMMER DIARRHŒA

Summer diarrhœa is the cause of more deaths among young children in our large cities than any other one factor. So prevalent and so dangerous an illness should be better understood by the laity than is the case at the present time. Every illness of this nature must be considered as a case of poisoning. The vomiting and diarrhœa are

conservative efforts on the part of Nature to get rid of the offending material. The poisoning may result from direct infection. It may be due to bacteria-laden milk, unclean feeding apparatus, or to any means whereby poisonous germs find entrance into the gastrointestinal tract.

There may also be an indirect infection or self-poisoning—an auto-intoxication. Heat plays an important part in these cases. The child is greatly depressed; the digestive processes are not properly carried on—the milk taken from the breast or bottle is not acted upon by digestive juices of the usual strength and volume; decomposition takes place; poisons are generated and absorbed, producing fever and prostration, the intestine endeavors to empty itself of the offending material and diarrhœa results.

Cholera infantum, inflammation of the bowels, dysentery—all very bad terms but in common use—are due primarily to the causes above mentioned. Such being the nature of summer diarrhœa, the duties of the mother in such cases should be clearly understood. The intestine must be relieved of as much as possible of the material which

is causing the trouble. For this purpose give two teaspoonfuls of castor-oil, and nourishment which will not furnish a fertile soil for the growth of bacteria. For this reason *milk must be stopped* with the first symptom of the trouble. The mother will never make a mistake in these cases; in fact, many a life will be saved by an immediate dose of castor-oil and by promptly stopping the milk diet before the physician arrives. Milk, in addition to furnishing a medium for the growth of bacteria, forms into tough curds which must pass the entire length of the intestinal tract, exciting a very active peristalsis, causing pain and an increase in the number of passages. The diet substituted for milk should consist of some cereal water, plain or dextrinized; either barley, wheat, or rice may thus be used; broths, whey, or substances of like nature may be given alternately or combined with the cereal waters. Salt should be added to the barley-water if it is given plain. I prefer to give one or two ounces of chicken or mutton broth with the barley-water. A teaspoonful of sherry wine or one teaspoonful of liquid peptonoids may be added to the barley-water. Broths must

be given in small amounts, as not infrequently they have a decidedly laxative effect.

It is not advisable to give one food continuously, as the child will tire of it. The addition to the barley-water of one of the substances suggested will so change its taste that, if necessary, the diet may be continued for several days. The quantity should correspond to the amount of food taken in health, but the intervals between feedings should be shorter—every two hours if practicable. For instructions for cooking the cereal water, see Formula, pages 00.

A patient is not to be considered out of danger nor should the milk diet be resumed until the stools are normal and not over two or three daily. In many cases milk must be excluded for two or three weeks. When it is resumed, care must be exercised in not giving too strong a mixture; many a relapse is due to this error. The first day not over one-quarter ounce of milk should be given in each feeding of the barley-water. If this causes no disturbance one-half ounce may be given the next day, increasing from one-quarter to one-half ounce daily, if there is no

return of the diarrhœa, until the customary strength is reached. Many children will not be able to digest nearly as strong a mixture as they were taking before their illness, and the diluted milk mixture will have to be supplemented by the use of dextrinized cereal gruels, cereal jellies, scraped beef, the white of an egg, and other easily digested substances. Every year I have patients who, after such an attack, cannot take a particle of milk without harm until the autumn is well advanced.

Bowel irrigation.—Washing out the bowels once or twice a day is also very helpful in the treatment of these cases if the stools contain any blood or much mucus. This is done as follows: A No. 14 soft-rubber English catheter, one that will not bend upon itself, if properly used, is attached to a fountain syringe. The bag should be held three feet above the patient, who should lie on the left side with the legs well drawn up. The tip of the well-oiled catheter is passed into the rectum a distance of two inches, when the water is allowed to pass in slowly. The water will distend the parts and facilitate the further introduction of the tube. Press

the folds of the buttocks together until the colon is filled. This, in a child eighteen months of age, will require from twenty-four to thirty ounces of water. When not less than one pint has passed in allow the water to pass out alongside the tube.

Prevention.—A word regarding the prevention of summer diarrhœa. It is not enough that the child be given properly prepared pasteurized or sterilized milk or breast-milk,—he must be made comfortable during the hot weather. The clothing should be of the lightest. On very hot days, if in the country, he should be kept in the open air, in the shade; if in the city, the coolest room in a house or an apartment is far better than the dusty streets. Whether in the city or country, on very hot days two or three fifteen-minute spongings with water at 60° F. will add greatly to the child's comfort.

Reduction of food.—Further, we know that the digestive capacity is lessened during the heated term, and the milk should be reduced in strength from one-quarter to one-third, adding boiled water to take the place of the milk removed.

Cleanliness.—As infection may be carried

to the feeding utensils by the hands of the nurse or mother, she should always wash them most carefully with soap and water before handling bottles or nipples, or preparing the infant's food. Inasmuch as other children may become infected, or reinfection take place in the one already ill, a child with summer diarrhœa should be isolated.

BATHS

The newly born child should be given daily a basin-bath with lukewarm, boiled water and castile soap until the cord falls and the navel heals. When this has taken place the tub-bath may be given. The temperature of the bath for the very young infant should not be below 95° F. nor above 100° F. Very young children should not be kept in the water more than three minutes. After the third or fourth month a temperature of 90° or 95° F. is best, the child being kept in the water about five minutes. At this age I prefer to have the tub-bath given at night, just before the child is put to bed. A basin-bath may be given in the morning. When the child is a year old and fairly vigorous,

the temperature of the water at the beginning of the bath should be 90° F. This should gradually be reduced to 80° F. by the addition of cold water, the child being vigorously rubbed with the hand while in the water. The temperature of the room should be from 76° to 80° F. during the bath, and windows and doors should be closed. When removed from the tub the baby should be dried quickly and thoroughly, and the folds of the skin should be well powdered. A sponge should never be used in any portion of the bathing process. It should never be included in the nursery outfit. It is never clean after it has once been used. Some children have a dread of the bath, and cry frantically when placed in the water. This is due to fear, and may usually be overcome by placing a sheet over the tub and lowering the child on it into the water.

The cold douche.—For “runabouts” from two to three years old it may not be wise to use water below 70° F., but many patients over three years have the water applied in the form of a cold douche after the cleansing bath, during the entire twelve months at the temperature at which it runs from the faucet.

In winter, in New York houses, this ranges from 50° to 60° F.

In giving the cold douche the child should stand in warm water covering the ankles. The douche may be used in the form of a spray or shower or the water may be applied by means of a sponge moistened with it at the desired temperature. The head, if the shower or spray is used, should be suitably protected by an oil-skin or rubber bathing cap.

After the cold douche there should be a vigorous friction of the skin with a rough towel. If there is not a quick reaction, if the skin does not become warm and glowing, warmer water should be used. So also with blueness of the extremities and "goose flesh"; use water less cold, but do not discontinue the douche.

In the great majority of homes the bathing of the children can be carried on with greater convenience immediately before their bedtime. The child should receive the warm bath and the cold douche, and then, in night-clothes, a warm wrapper, and suitable foot covering, he should eat his supper. However, if this time is not convenient, he may

be given the evening meal at 5.30 or 6.30, followed in one hour by the bath and bed.

Tub-baths for fever.—Place the child in water at a temperature of 95° F. and reduce to 75° or 80° F. by the addition of ice or cold water. The duration of the bath should not be more than ten minutes, constant friction being maintained during the entire process.

Basin bathing for fever.—Add eight ounces of alcohol to a quart of water at a temperature of 70° F. The child is stripped and covered with a flannel blanket, and the entire body sponged with this solution for ten or fifteen minutes.

Either the tub-bath or the basin-bath may be used by the mother in case of sudden high fever— 104° to 105° F.—before the physician arrives. She should be so instructed.

Bathing for comfort in hot weather.—The basin-bath and tub-bath may also be used as a means of relief during very hot weather. One or two basin-baths a day, with a tub-bath at bedtime during this trying season, will give the child much relief, and help him to pass safely through it. The very young feel the extreme heat most acutely, and

endure it with difficulty. I know of nothing else that will give a restless, uncomfortable, heat-tormented child such a refreshing sleep as will a cool basin-bath.

Mustard bath.—A mustard bath is prepared by adding a heaping tablespoonful of mustard to six gallons of warm water. One of the uses of the mustard bath is in the treatment of convulsions; it will be found useful also for nervous children who sleep badly. Two or three minutes in the mustard water, followed by a quick rubbing immediately before going to bed, is oftentimes all that will be required to induce refreshing sleep.

Brine bath.—A brine bath—an even tablespoonful of salt to one gallon of water—is of great service with very delicate, poorly nourished children. Its action is that of a tonic. If the child is thoroughly soaped and washed with plain water, and then immersed in the brine bath, no further tubbing is necessary. The child should be kept in the bath for five or ten minutes, constant friction being continued during the entire time.

Soda bath.—The soda bath is of some service in cases of prickly heat from which many children suffer during the summer. A table-

spoonful of bicarbonate of soda should be added to each half-gallon of water used. The temperature of the water should be that to which the child is accustomed. From two to four minutes in the water suffices. There should be little or no friction of the skin. The child should be dried with soft towels.

Bran bath.—The bran bath also is of service in prickly heat. One cup of bran is mixed with the water in the bath-tub and the same method employed as for the soda bath.

Starch bath.—The starch bath also is useful in prickly heat. One-half cupful of powdered laundry starch is mixed with the water in the bath-tub, and the same method employed as for the soda bath.

Hot bath.—Place the child for from three to five minutes in water which has been raised to a temperature of 105° to 110° F. Constant friction of the extremities is maintained while in the water.

EARACHE

Infants and young children are very susceptible to attacks of earache. They usually occur in children who are suffering from some

inflammatory condition of the throat or nose. Such, however, is not necessarily the case. I have seen earache in children who apparently were in perfect health. In the very young the only symptoms of the trouble may be restlessness, fever, which is usually present, and pain, which is manifested by crying. I have repeatedly seen an attack so severe as to cause an infant to shriek with pain, without any sign to locate the trouble. An older child, in addition to the above, will usually raise the hand to the side affected or point to the painful ear. The child usually is much disturbed if the ear is touched or manipulated in any way. While severe pain is the rule, it may be absent; there may be loss of appetite, high fever, and restlessness for three or four days with no other sign of illness, and no evidence whatever of pain, when suddenly one discovers a yellowish discharge from the ear, with temporary or permanent relief from the symptoms.

In case of an attack of earache, dry heat is of much service. Rest the ear on a hot-water bag, or apply a salt bag, made by sewing together two pieces of muslin about three by five inches in size and filling it one-half

full with salt. The bag and contents are then pressed flat, heated, and applied to the ear, the salt retaining the heat for a long time. Another device is to fill the finger of an old glove with salt, heat it, and place the tip in the ear. As an extra precaution the mother or nurse should first test it in her own ear. A douche at 110° F. may also be of considerable service in these cases; in my experience, earache is best relieved by this means. The child should be pinned in a sheet, and lie on its back, with its head on a level with or a little lower than the body. A basin protected with a towel or absorbent cotton is placed under the ear. One assistant is required to steady the head, as the child will be sure to struggle. The douche bag—an ordinary fountain syringe—should be held not more than two feet above the child's head. From one to two pints of water may be needed. The tip of the syringe is placed about one-quarter of an inch from the orifice of the canal and the water is allowed to flow into the ear until the child is relieved or until the bag is empty. Such a douche may be repeated every hour until medical aid arrives.

Earache is usually due to the presence of pus or other fluid behind the drum membrane. This causes pressure within the ear which may require a slight operation for its relief.

THE CARE OF THE EYES

The eyes should always be well protected from the sunlight, the young infant never being allowed to lie with a bright light from a window streaming into its face.

The eyes should be washed once daily with plain boiled water. A piece of soft old linen should be used and immediately burned. Before touching the eyes for any purpose, the hands must be washed with hot water and soap.

No other home treatment of the eyes is allowable, however slight the ailment. The custom of putting breast-milk into the eyes cannot be too strongly condemned. Teas of various kinds and proprietary or home-made eye-washes should never be used. Over 90 per cent. of the cases of blindness develop during early life, nearly all being due to neglect or bad management.

DENTITION

Much has been written about the process of teething. Nearly all the ills of childhood, other than the contagious diseases, have been attributed to this cause. Not only the laity, but physicians, are often inclined to attribute this or that ailment to teething. Many a diagnostic puzzle has been smothered under the diagnosis of dentition. Observations covering the teething period of several thousand children in institution, out-patient, and private work, among all classes and conditions of children, have taught me to divide teething babies into three groups: the breast-fed, the well-managed bottle-fed, the badly fed.

The breast-fed.—In the great majority of the breast-fed, the teeth appeared at the proper time, with little or no disturbance. Perhaps there was a period of irritability and restlessness for a few days before the teeth came through. In many, the teeth appeared without the slightest inconvenience, and that a tooth had been cut was discovered while washing or dressing the baby. In a very few breast-fed babies there were distinct

irritability and restlessness, with fever and a slight diarrhœa, all of which subsided when the teeth appeared.

The well-managed bottle-fed, such as were given cows' milk and cream, properly prepared and diluted, teethed, as a rule, without inconvenience. Some showed a tendency to slight gastro-intestinal disturbance, which was relieved by diet and simple medication. The cases which occasionally developed severe intestinal disturbances were those which cut the first molars or several other teeth at one time during the hot weather. Such infants must be kept on a very light diet until the teeth are through, or until the onset of colder weather.

The badly fed.—These were nearly all bottle-fed. They were given cows' milk improperly prepared or at too frequent intervals. Only condensed milk and the proprietary foods had been given some of these infants. To this class belong the great number of infants who are given bread, meat, potatoes, and sweets before the digestive organs are ready for such food. It is these badly fed, debilitated, rachitic infants who are said to "teeth hard." They teeth late,

cut several teeth at one time, and have attacks of convulsions, diarrhœa, and vomiting during the teething period. There is no doubt that the alimentary tract is predisposed to troubles of a catarrhal nature during active dentition. If the baby has been properly fed and is in fair health, this tendency is so slight that it probably will not be noticed. If, on the other hand, the digestive tract is weakened from abuse, vomiting and diarrhœa often result. The majority of children who belong to the third group are rachitic, and rickets always mean enfeebled resisting powers. Rachitic children teethe late. A rachitic boy under my observation cut his first tooth during the ninth month, and with the eruption of this tooth and with each of the five that appeared at intervals of two or three weeks during the next five months, an attack of vomiting and diarrhœa occurred, each attack subsiding when the tooth pierced the gum.

Irritability and restlessness, slight fever and gastro-intestinal derangements, were the only unpleasant effects of dentition in any of my patients who were in fair health. The irritability, restlessness, and fever ap-

peared to be due directly to dentition. Indirectly, teething may be a factor in gastrointestinal derangements. The process may be painful, the digestive organs fail to act properly, and trouble follows. I have never known dentition to cause bronchitis, eczema, or skin eruptions of any kind.

The opinion is very general among the ignorant, that bronchitis needs no treatment, and that diarrhœa is beneficial during the teething process. These beliefs, equally dangerous, have been the cause of an incalculable amount of harm: as the result, many lives are lost yearly. I have time and again seen children die with summer diarrhœa who were brought for treatment when no hope could be given. The mother had been told and believed that diarrhœa was beneficial to the teething child, and that if the diarrhœa were stopped the child would be thrown into convulsions.

When the form of a tooth can be made out pressing on the gum, and the child is fretful and feverish, the digestive capacity is lessened, as previously mentioned. When such is the case the nourishment should be temporarily reduced one-half by the addition

of boiled water. If the child is breast-fed, the nursing period should be reduced to five or six minutes, and boiled water given to drink between feedings. If a tooth is trying to force its way through a thick, resistant gum, a great deal of pain and discomfort will be spared the child if the tooth is assisted in its progress. This is best accomplished by the use of a clean towel, which is placed over the finger and vigorous friction brought to bear over the sharp edge of the tooth. It is quicker and less painful than lancing, and the gum will not close over the tooth.

THE TEETH

Twenty teeth comprise the first set. In the well child the first tooth usually appears between the sixth and the eighth months; the first teeth may, however, in perfectly normal cases, come earlier or much later. I have known well, vigorous children who did not get a tooth until the thirteenth month. The first teeth are usually the two lower central incisors; generally the four upper incisors and the two lower lateral incisors

appear between the eighth and the tenth months. The first four molars appear between the twelfth and the fifteenth months; the eye- and stomach-teeth between the eighteenth and the twenty-fourth months; the four posterior molars between the twenty-fourth and the thirtieth months. This regularity in the appearance of the teeth is by no means constant even in well children. I have in several instances seen the upper lateral incisors appear first. In delayed dentition the teeth are very apt to appear irregularly.

The care of the teeth.—As soon as the teeth appear they require attention. Until the second year is reached the mouth should be washed out at least twice a day with a solution of boracic acid—one ounce to a pint of water. This can best be done by means of absorbent cotton wound around the tip of a clean index finger and afterward dipped into the solution, when it should be applied with gentle friction to the gums and teeth. When a child is two years old it is well to begin the use of a soft tooth-brush, and a simple tooth powder composed of the following ingredients:

Precipitated chalk, 1 ounce.
 Bicarbonate of soda, 1 drachm.
 Oil of wintergreen, a few drops.

The child should also be instructed early as to the proper use of a quill tooth-pick.

The milk-teeth are lost between the sixth and eighth years. They should not decay but fall out or be forced out by the second set. The teeth of every child over two years of age should be examined by a dentist every six months. If cavities are discovered in the first teeth they should be filled with a soft filling.

The permanent teeth.—The permanent set comprises thirty-two teeth. The second dentition begins about the sixth year, and is usually completed about the twentieth year, although it may be delayed several years later. The permanent teeth appear in somewhat the following order:

First molars sixth year.
 Central incisors . . . sixth to seventh year.
 Lateral incisors . . . seventh to eighth year.
 First bicuspid ninth to tenth year.
 Second bicuspid . . ninth to tenth year.

Canines.....eleventh to twelfth year.
Second molars.....thirteenth to fifteenth year.
Third molars.....after the eighteenth year.

THE HAIR

Whether the child should wear the hair long or short is a point upon which the doctor is likely to give unsought advice. There are two reasons why a child's hair should be kept short :

1. From the standpoint of comfort. During the hot months children perspire very freely both by day and by night. The heavy mass of hair which falls about the neck and shoulders adds greatly to the warmth and discomfort. I find that many children with long hair are poor sleepers and are irritable and hard to please when awake. In winter the child is very apt to perspire about the head and neck in active play, and runs a greater risk from exposure than if the excessive perspiration did not occur.

2. The hair should be kept reasonably short, because then the scalp can be kept in a much healthier condition, and a much better growth of hair assured in later life.

NURSERY-MAIDS

The mother who can afford the expense of a helper should never take entire charge of her baby; nor should she share this duty with the maid of all work if better assistance can be secured. The child requires more attention than any one person should bestow. If one person is constantly in charge of a child it will either be neglected or the health of the mother or nurse will suffer and consequently her services be less efficient. Many a young mother has sacrificed her health because of a false sense of duty in this respect. The close confinement in itself would ruin her health and make her prematurely old. The children that are born later have less vigor, are more susceptible to illness, and start out handicapped in life as a consequence. The constant attention of the mother is not necessary; in fact, it is often injurious to the child. She is apt to handle the child too much, to overentertain it. A bright young woman should be secured as soon as the monthly nurse leaves, to assist in the care of the child. If she is a trained nursery-maid who has had previous

experience of the right kind, she will be invaluable. In case a trained assistant is not to be obtained, any intelligent young woman of cleanly habits, and who is fond of children, may be trained at home in a few weeks.

THE TRAINED NURSE

If possible, a trained nurse should be employed in every severe illness of childhood. She may alternate with the mother or nursery-maid in the care of the child. If the case is very urgent, two trained nurses should be employed. The nurse must never be expected to work for more than twelve consecutive hours. A tired nurse should never be in charge of a sick baby.

The employment of a trained nurse does not mean that the mother may not perform many little offices for the patient, but the trained nurse should be in charge, and her opinions respected.

Many an excellent mother makes a very poor nurse for her own child during a severe illness. Her great interest and anxiety impairs her judgment. She is apt to become confused and fail to meet emergencies. A

mother who is useless for a like office in her own household oftentimes makes an excellent nurse for her friend's child. The mother in the capacity of a nurse for her own infant is apt to fail under some of the following conditions: She is inclined to put more clothing on the baby than the doctor advised. If a window is the means of ventilation, she has a strong inclination to close it a little beyond the point which the physician marked with a lead-pencil. The temperature of the sick-room is often kept higher than is good for the baby. Offices, the performance of which cause the child discomfort, are often not thoroughly attended to, such as washing the eyes, sponging off the patient in fever, syringing the ears, and adhering to a greatly restricted diet. These, and a few like offences, are pardonable in the mother, but they show us that in a severe illness trained help is indispensable. Further, I am very sorry to say that sometimes influences against carrying out the physician's directions in important particulars are successfully brought to bear upon the mother by well-meaning relatives and friends who possess no knowledge whatever of the illness in question.

ADENOIDS

Adenoids are tumor-like growths that develop at the junction of the upper portion of the posterior pharyngeal wall and the vault of the pharynx. They may simply cover the surface of the parts in a spongy layer or they may fill the entire naso-pharyngeal space, completely blocking the passage from the nose to the throat. They are not to be considered as new growths, but rather as hypertrophies, or overgrowths, of the mucous glands and tissues of the parts. They may vary in size from a flaxseed to a walnut. Among the causes of adenoids may be mentioned the use of the "pacifier" in infancy, repeated "colds" in the head, breathing the dust-laden air of our large cities, malnutrition, and unhygienic living. While the taking of cold is a factor in the development of adenoids, my observation is that predisposition plays an important part. Many children have a tendency to glandular enlargement; in fact, in New York City, a large percentage of the children under ten years of age have adenoids. In a child under two years of age the naso-pharyngeal

space is a very narrow slit; and since the majority of children up to the eighteenth month of life are sucking on something the greater part of their waking hours, the soft palate is forced back against the posterior pharyngeal wall, interfering with the drainage of the parts, and on account of the friction of the opposed surfaces congestion and irritation follow, resulting finally in a general hypertrophy.

Very young children may have adenoids. The youngest patient that I have operated upon was eight months old. The majority of cases occur in children from eighteen months to six years of age. A slight amount of adenoid growth may cause no symptoms. A few summers ago I examined the throats of forty children between the ages of two and five years, who came for treatment for other conditions. In thirty-seven, adenoids were present. In twelve, operation was advised, and in five, operation was performed. In fifteen the growths were not sufficiently large to justify operation in the absence of annoying or dangerous symptoms.

The presence of adenoids is perhaps most often manifested by symptoms of chronic

cold in the head. There is a great deal of discharge from the nose. The child has snuffles all winter. During summer there is little if any trouble. The child is said to take cold easily. The slightest exposure will cause a running at the nose. Cough is often associated with the nasal discharge, or it may follow it. The cough is worse at night; in fact, it often is not noticed until the child goes to bed. Such a cough was formerly known as "the nervous cough" or "the stomach cough."

If the growths are large, we have mouth-breathing added to the other symptoms. The child breathes through the mouth both day and night for the reason that the breathing space through the nose is choked. The night mouth-breathing gives rise to snoring; some of these children snore like adults. Almost every snoring child will be found to have either adenoids or enlarged tonsils, or both.

In advanced cases the appearance of the face of the patient is characteristic. The habitual open mouth gives the face a stupid expression. In fact, such children are apt to be mentally dull. The nostrils are small

and pinched. The upper lip is usually thickened. The voice is also affected; there is a decided nasal twang, and articulation is sometimes impaired. The child has trouble in blowing his nose. Occasionally adenoids are the cause of very severe nosebleed. In a small proportion of the cases hearing is impaired. Bed-wetting may be due to adenoids. Recently a writer reported seven cases of inveterate bed-wetters, all cured by the removal of the adenoids. These children are more susceptible to diphtheria, and if they contract the disease it is apt to be more severe. For adenoids of any degree of severity, complete removal is the only treatment. Sprays and the various local applications are absolutely worthless. The operation is practically without danger.

ENLARGED TONSILS

Chronic enlargement of the tonsils is almost always associated with adenoids and is responsible in a degree for their presence. We see many cases of adenoids, however, in which there is no tonsillar enlargement. Predisposition and repeated attacks of acute tonsillitis lead to chronic enlargement of the

tonsils. Enlarged tonsils, when associated with adenoids, do not change the character of the symptoms of adenoids except to aggravate them; therefore they should be removed as well as the adenoids. All other treatment in young children is useless. The operation in skilful hands may be said to be practically without danger. Parents always dread the operation, but the relief afforded the suffering child, and the knowledge that a serious obstacle to the child's growth and development has been removed, will repay them for their hours of anxiety. Gargles and sprays are of little or no value in chronic enlargement of the tonsils.

MILK IN INFANTS' BREASTS

It is not at all uncommon for an infant's breasts, at birth, to contain a substance resembling milk. When this occurs, the breasts are to be left alone and the milk will disappear. It is quite a common belief among hospital and dispensary patients that the milk should be pressed out. This is very wrong. In two cases I have known abscesses to develop after this treatment by a midwife, and in one case the child nearly lost its life.

TEMPERATURE, AND HOW TO TAKE IT

The normal rectal temperature of an infant varies between 98.5° and 99.5° F. The temperature should be taken in the rectum. The mouth is impossible, the groin and axilla absolutely unreliable. The child should lie on its stomach either in its bed or across the nurse's lap. Both the anus and the bulb of the thermometer should be well oiled. The bulb is passed into the rectum so that the mercury *cannot be seen* and allowed to remain three minutes. If the child kicks or struggles some one should hold its legs. Mothers are often disturbed because of a persistence of the temperature between 99.5° and 100.5° F. While such a degree cannot be considered normal, it does not follow that it is of any consequence. This slight elevation may follow the acute illnesses such as gripe, pneumonia, and scarlet fever, and may continue for weeks, without any harm resulting. Nervous, irritable infants will often range at 100° F. for weeks at a time. In like manner children who are stimulated by playing with older children or with adults will often develop a rise in temperature

which subsides as soon as the cause is removed.

The thermometer should be washed with a one-per-cent solution of carbolic acid after using.

APPETITE

It may be safely said that a well, vigorous child is a hungry child, and nearly every child may be made thoroughly hungry three times a day by suitable food at proper intervals. The children who come under my care for poor appetite, without evidence of disease to account for it, are, almost without exception, improperly fed. They are often given unsuitable food at meal-time, when they are loaded down with sweets and pastries; but the chief error is eating between meals. This habit has ruined more appetites and has been the cause of more stomach disorders than any other one factor. It is surprising what a large amount of candy, sweet crackers, and the like are disposed of in many households. Every year I am called upon to treat cases of loss of appetite in "runabouts" from eighteen months to three years

of age, who have what I have designated *the milk habit*. These children drink from five to six pints of milk a day, and refuse all other food. The milk satisfies the appetite but does not furnish the nourishment required for the rapid growth that takes place at this time, and the child in consequence suffers from malnutrition. He is pale, thin, and sallow in appearance, the sleep is poor, and the child is irritable and hard to please. We also see children at this age who suffer from improper nutrition on account of too restricted a diet. They take other food than milk, but not in sufficient quantity or variety. Some will refuse all kinds of vegetables, others will refuse all kinds but one or two; some will not take stewed fruit; others will not touch meat or eggs, no matter how they may be prepared; some will take but one cereal, others will refuse cereals altogether. The child's whims in these respects must never be catered to. He is to take what is placed before him or go without until the next meal. Likes and dislikes for various articles of diet are largely a matter of education, and the child may, and should, be taught to eat everything that is good for

him. A little firmness in compelling him to go hungry for a few hours will soon do away with any childish fancy, which may be the cause of considerable harm. These children are rapidly growing, and for proper growth and development require a mixed diet. If the child is wedded to milk and refuses everything else, the milk must temporarily be discontinued. Some children with a poor appetite for solids will drink a glass or two of milk at the commencement of a meal. This satisfies the appetite for the time and nothing more will be taken. With such children the milk must be kept out of sight until the meal is completed, when one-half pint may be given.

I have treated quite a number of cases of poor appetite and milk appetite in children otherwise well, in the following manner: The child is undressed and placed in bed and put under the care of one person as though he were very ill. The object in placing the patient in bed is to prevent his getting food other than that ordered. He is allowed water to drink in plenty. For the first day he is given four ounces of plain chicken or mutton broth every three hours.

The second day he receives six to eight ounces of the broth at three-hour intervals. On the third day he is usually ravenously hungry and he is then given three or four good meals, when, if he has any special dislike for any article of diet, that is included in the first meal. In such cases it is surprising with what favor the formerly despised cereal, meat, egg, or vegetable will be looked upon, and it will thereafter have a cherished place in the child's heart. Some mothers will not be a party to such heartless treatment, as they are inclined to call it, but this is a wrong view to take of it. A complete change of diet for a day or two would often be of benefit to all of us. With the child the advantage derived from thus learning to enjoy a mixed diet will favorably influence his health for the rest of his life. Change of climate, fresh air, out-of-door exercise, suitable food at regular intervals—all favorably affect the appetite.

Children who over-exert themselves at school or at play or who are easily excited and have plenty of opportunity for excitement often suffer from loss of appetite. The management of these cases is to remove the

source of the trouble, whatever it may be. An excellent means of bringing these children to a normal condition is an enforced rest for one and one-half hours after the noon-day meal.

HABITS

The Pacifier; Ear-Pulling; Masturbation

Babies acquire habits most easily and at a very early age. Whether the habits are good or bad depends more upon the child's attendants than upon the child itself. If properly trained—and the training must begin at birth—a baby will acquire the habit of taking his food at regular intervals by day and by night, and he will also acquire the habit of going to sleep and waking at regular intervals. As a result of a careful *régime* regarding feeding, sleep, bathing, and airing, and the performance of its various functions at stated times every day, the baby will soon develop into a "little machine," as one mother called her babe. Such a child causes no trouble and thrives far better than one who is fed every time he cries, day or night. A baby that requires constant entertaining

when awake, and that sleeps only when exhausted, usually has another bad habit,—that of being held constantly in arms. A baby should be handled very little,—just enough to give it exercise. It will learn to amuse itself at a very early age if given an opportunity.

The “pacifier” habit—the habit of sucking a rubber nipple — is an inexcusable piece of folly for which the mother or nurse is directly responsible. The habit when formed is most difficult to give up. The use of the “pacifier,” thumb-sucking, finger-sucking, etc., make thick, boggy lips, on account of the exercise to which the parts are subjected. They cause an outward bulging of the teeth and a narrowing of the jaws, which are not conducive to personal attractiveness. Nature has not been so lavish of her gifts to the great majority of mankind that they can afford to trifle with her handiwork. Furthermore, the “pacifier” is often a menace to health. If there are two or three young children in the family it is frequently passed around without other means of cleansing than being drawn a couple of times across the nurse’s sleeve. This novel method of disinfecting

the "pacifier" may be seen in actual use in the Park any pleasant day, and I have often seen the mother or nurse moisten the "pacifier" with her own lips before giving it to the child. I have seen young children fight for the "pacifier," one taking it from the mouth of another! It may readily be conceived what a boundless source of harm this little instrument may be, when every sort of disease known to childhood may be transferred by it. Thus it may act as a means of transmitting tuberculosis, syphilis, diphtheria and many other ailments of minor importance.

Adenoids, referred to in another chapter, are often the result of thumb-sucking or the use of the "pacifier." The pressure exerted in sucking forces the soft palate against the posterior pharyngeal wall; this irritates and stimulates the glands of the part, which in time enlarge, and adenoids develop.

To break the child of the "pacifier" habit, burn the "pacifier" and do not buy another, as is sometimes done. For thumb-sucking and finger-sucking, bandage the hands and moisten the bandage occasionally with a solution of quinine. The "hand and hold mit" (Fig. 00) is a useful means in breaking the habit.

A few children develop the *ear-pulling* habit. It is always one ear which receives attention. Sometimes it is the lobe and sometimes the upper portion. The child pulls on the ear the greater portion of its waking hours. As a result of this practice, I have seen ears drawn entirely out of shape. Bandaging the hands so that the fingers can not be used to grasp the ear is the best means of breaking the habit. The "hand and hold mit" may also be used with advantage.

Occasionally children are met with who have a mania for placing *foreign bodies in the nose and ear*. Shoe buttons are the favorites, although beans, pieces of coal, pebbles, and various other kinds of buttons serve the purpose when shoe buttons are scarce. The habit is best controlled by a vigorous spanking following each offence.

Masturbation is one of the most injurious of habits. It consists in an irritation of the genitals by manipulation, by leg-rubbing, or by pressing the parts against some pointed object. Under the age of six years masturbation is more common in girls than in boys. My youngest was a girl only six months old. If the habit is not detected,

masturbation may be practised for a long time and repeated many times a day. As a result, the child becomes irritable, loses sleep and weight, and is transformed into a condition of mental and physical exhaustion.

The formation of habits and their correction rests largely with the mother or attendant. Considerable stability is necessary for the correction of a bad habit, or the formation of a good one. It means several prolonged crying attacks on the part of the child and perhaps two or three wakeful nights. To cure the habit of masturbation, if the child is under eighteen months of age, the hands may be bandaged, or, what is better, a piece of tape may be fastened around each wrist and tied together at the back of the neck, making all secure with a safety-pin. The pieces of tape should be of sufficient length to allow the child free movement of the hands, but not long enough to allow them to come in contact with the genitals.

Leg-rubbing is more frequently seen in very young girl babies. In such cases the wearing of a thick napkin or of two napkins will usually prevent the practice. In some

obstinate cases of leg-rubbing in older girls I have used a "knee crutch" with decided success. In children over two years of age, constant watchfulness and vigorous punishment for each offence, combined with medical treatment, will cure most cases, although with some much difficulty will be experienced.

The practice must be prevented and the genitals brought to a normal condition, when the patient will soon forget the indulgence.

THE NORMAL THROAT

Every mother should learn the appearance of the healthy throat, and every child should be accustomed to throat examination. It will soon learn that no harm is intended and force will not be required. The family physician should demonstrate to the mother the color of the normal mucous membrane, and the size and appearance of the tonsils in health. By knowing the normal throat she will be able to recognize inflammation, swelling, and exudation in the form of the cheesy dots seen in tonsillitis, and the membrane in diphtheria. With the first appearance of exudation of any kind, medical aid should

be summoned. No chances should be taken with these cases. I know of fathers and mothers who will never cease to regret that they did not appreciate the dangers of temporizing with what they considered a "cancerous sore throat." Diphtheria is most insidious in its onset and a sore throat should never be neglected.

HOW TO EXAMINE THE THROAT

(See Fig. 8.)

In order to examine a baby's throat quickly and thoroughly the child must be held in front of and at the right side of the attendant, supported by the attendant's left arm under the buttocks; the right arm, which is thus left free, is passed around the child, binding its arms to its sides. The child's head rests upon the right shoulder of the attendant.

The mother places her left hand on the child's head to steady it and with tongue depressor or teaspoon in her right hand she presses down the tongue, and, with the child under perfect control, she brings into view the parts that are to be examined. The

most satisfactory view can be obtained by daylight before a window. If the examination is made in the evening, a lamp or taper



FIG. 8. THE THROAT EXAMINATION

held by a third party, a trifle above and behind the mother's right shoulder, will furnish a satisfactory illumination.

SPRUE AND THRUSH

Thrush consists of a parasitic growth which appears on the mucous membrane of the mouth in young infants. The dis-

case makes its appearance in the form of small white masses about the size of a pinhead. The tongue and the inner side of the cheeks are favorite sites for the growth, although in severe cases the entire buccal cavity may be studded with it, causing it to look as though finely curdled milk had been scattered over the surface. The growth is firmly adherent, and if removed forcibly, slight bleeding results. It is usually associated with uncleanliness, and occurs, as a rule, in weakly and marasmic nurslings and in the bottle-fed, more frequently in the latter. It is rarely seen after the sixth month.

In an infant with sprue, there is evidence of much pain and discomfort while nursing or while feeding from a bottle. The disease is not contagious. The average case may easily be cured in a week, if the directions for the treatment are carefully carried out. Active gastro-enteric disturbances, such as vomiting and diarrhœa, may be associated with sprue, but it is not the rule. Time and again I have seen cases of sprue in which there were absolutely no other signs of the disease aside from the characteristic mouth lesions and the refusal of food.

If the means of prophylaxis, which will be suggested, are used as the daily routine, the disease will never appear.

If breast-fed, the mother's nipples must be washed with a saturated solution of boric acid, and moistened with alcohol, diluted one-half, which is allowed to evaporate before each nursing. If bottle-fed, the nipple and bottle should be boiled after each nursing, the nipples turned inside out and scrubbed with borax water—one ounce of borax to a pint of water. Whether breast-fed or bottle-fed, the mouth should be washed with a saturated solution of boric acid after each nursing. For this purpose a generous amount of absorbent cotton is loosely wrapped around the clean index-finger of the mother or nurse. This is placed in the cold solution, and without pressing out the water the finger is introduced into the child's mouth, and, in cases of sprue, brought gently in contact with the diseased parts, first with one side and then with the other, being pressed upon the tongue and under the tongue. It is well to have the child rest on its side or stomach so that the fluid which is pressed out by the manipulation of the

cotton against the cheeks and jaws can readily escape from the mouth. The washing, which really amounts to an irrigation, can be done in a few seconds, without the slightest danger of abrading the epithelium.

Internal medication is of no value in sprue except in correcting any intestinal derangement that may exist, with a view to improving the general condition. If the bottle or breast is refused, spoon-feeding for a few days may be necessary, and will hasten a cure. If the child is nursed, the mother's milk may be drawn with a breast-pump (see page 47), or pressed out with the fingers, and fed to the child. The domestic remedy, honey and borax, should not be used in any of the inflammatory diseases of the mouth in children.

STOMATITIS, OR SORE MOUTH

There are three varieties of this disorder—*the catarrhal, the aphthous, and the ulcerative.*

In the catarrhal form there is redness of the gums with excessive secretion of saliva.

In aphthous stomatitis, distinct grayish-

white plaques will be noticed on the inner side of the cheek and under surface of the tongue, varying in size from a pin-head to a split pea.

Ulcerative stomatitis is the most serious disease of the three. It may occur during serious illness, but in most instances it occurs independently. There is a general congestion of the mucous membrane with the secretion of a great deal of saliva. Its distinguishing point, however, is the line of ulceration which forms on the border of the gum at its junction with the teeth. The ulceration may be so severe as to cause a loosening and falling out of the teeth. The breath is often very foul, and the gums bleed at the slightest touch.

Lack of cleanliness plays a large part in causing sore mouth. Unclean feeding apparatus, the use of the "pacifier," and the custom of allowing a baby to put into its mouth everything within reach account for a majority of the cases.

The symptoms are fever, loss of appetite, and evidences of much discomfort when the child attempts to eat. In many cases of the ulcerative form there are high fever and

greater prostration than one would think possible.

The prevention and treatment are the same—cleanliness. The sore mouth should be washed with a saturated solution of boric acid after each feeding, using absorbent cotton, which is wrapped around the index finger. The cotton is saturated with the solution and gently brought into contact with the diseased surface. Force must not be used in these cases, as more damage than benefit will result if the tissues are lacerated. In the ulcerative form internal treatment is required in addition to the local means suggested. Every case of ulcerative stomatitis should be seen, at least once, by a physician.

TAKING COLD

By “taking cold” we understand that through the influence of cold upon some portion of the skin an impression similar in nature to that of shock is produced, which affects the entire body and manifests itself most frequently in the form of a congestion of the mucous membrane of the respiratory tract, between which and the skin there

seems to be an intimate connection. Micro-organisms play an important rôle in the process. They are found in large numbers on the diseased mucous surfaces. The changes in the mucous membrane resulting from the exposure prepare the parts for their growth and development. The taking of cold means previous exposure, and what will constitute a sufficient degree of exposure in one individual may produce no effect in another. According to my observation, the most frequent cause of colds in infancy is the action of cold air on a moist skin. The child that perspires readily, or the child that is made to perspire by unsuitable clothing, suffers most in this respect during the cold season. I look upon inadequate head-covering as a most frequent cause of diseases of the respiratory tract in the young. Most infants are dressed for the daily outing in a warm room, with the temperature ranging from 75° to 85°. The child is wrapped in ample coats, blankets, and leggings; he is active, throws his legs and arms about; the dressing thus far requires quite a period of time he perspires freely, but the dressing is not completed. On the head is placed

one of the more or less artistically decorated airy creations which are sold in the shops as children's caps. They furnish little protection for the many square inches of the almost bald little head. The child is taken out of doors; a wind is blowing; the result is a cold, and how it came about is never understood. He was supposed to be dressed ideally for cold weather. The idea is common and to a certain degree proper that a child's head should be kept cool. This theory, however, gives rise to carelessness as to the head-dress. During the colder months I advise mothers to make a skull-cap out of thin flannel, which the child can wear under the regular outing cap.

Allowing a child to sit on the floor during the winter months is probably the next most frequent cause of taking cold. Kicking off the bedclothes at night is another frequent cause. Taking the child from a warm room through a cold hall is not without danger. Holding the child for a few moments by an open window during the cold weather is often followed by croup, bronchitis, and pneumonia. The uneven temperature of the living- and sleeping-rooms in many of

our New York apartments is a very frequent cause of cold. Frequently during the day the temperature will be between 75° and 80° , but at night, when the fires are banked, it falls to 55° or 60° or lower. The child went to bed warm and perspiring, kicked off the bed-clothes, the temperature in the room fell, the body became chilled, and the child took cold.

Among rachitic children there is a marked predisposition to catarrhal affections; they acquire laryngitis and bronchitis upon very slight provocation.

In many instances colds in infants are attributed to the bath. Among dispensary mothers this is often considered a cause of cold. I have never known a cold to be due to a bath.

Adults and "runabout" children with coughs and colds should not come in contact with infants. There is undoubtedly an element of contagion in such cases. It is a very bad practice to have a *family* pocket-handkerchief. The youngest infant is entitled to a handkerchief independent of the other children, and a handkerchief should never do service for more than one individual between washings.

Mothers can do little without medical aid in the treatment of colds, but they can do much in preventing them. The temperature of the living-room should range from 70° to 72° F., the sleeping-room from 60° to 66° F. Of course it will be impossible to keep the temperature at all times at these figures, but the closer it approximates to them the safer the child will be.

Children must not be allowed to sit on the floor during the winter. They can have their playthings on the bed, on the sofa, or in a clothes-basket, which may be raised on two thick pieces of wood or a couple of books. There is always a draught near the floor. The "pen" referred to on page 321, is the best scheme that I know of for keeping children from the floor.

The room in which the child is dressed for an outing should not be above 70° F. Securely pinning bed-blankets to the mattress, or, better, a combination suit with "feet" will do much to prevent the child from taking cold at night.

COUGH

The most frequent cause of the temporary

cough seen daily in children's work is almost always an acute inflammatory condition of the mucous membrane of the respiratory tract, involving usually the fauces, the larynx, and bronchi, subjects which are referred to under their respective headings.

Chronic cough.—Ninety-five per cent. of the obscure coughs are due to adenoid vegetations in the naso-pharyngeal vault. Incipient tuberculous infiltration in any portion of the lungs or pleura may produce the persistent cough. Thorough physical examinations and careful observation of the case for a few days will make a diagnosis possible. Whooping-cough without the whoop or vomiting may cause a persistent cough. It runs its course and subsides in from four to eight weeks. A diagnosis of such mild cases of whooping-cough is possible only when there is a history of exposure to the disease. I have had occasion to examine and treat many children who were brought to me because of a "cough" which had not been controlled by the measures employed. While we hear much of the cough of teething, the "stomach cough," the "nervous cough," and the "habit cough," it has never been

my lot to see a case in which the cough was not connected in some way with the respiratory tract. Thorough examination of these cases, perhaps repeated examinations, will be required before the site of the trouble is definitely located, when it will almost invariably be found somewhere in the respiratory tract. The stomach cough, the nervous cough, and the teething cough formerly stood for the *persistent cough* which could not be accounted for by physical examination of the chest or by mere inspection of the throat. They are frequently referred to by the older writers. An elongated uvula, to which these obscure coughs have also been attributed, is very rarely a cause. The history is usually only that of a persistent cough. It may be irritating in character, keeping the child awake at night, or it may be paroxysmal, the attacks being more severe when the child is lying down. Many times the paroxysms are so severe, being particularly worse at night, that whooping-cough is suspected because of the absence of chest signs.

An immense majority of these obscure coughs in children are due to adenoid vegetations with or without enlarged tonsils. A child

with such a cough may have the typical adenoid face, mouth-breathing, and other signs referred to (see Adenoids, page 137), or these symptoms may be entirely absent. It is the latter type of case that is particularly puzzling and apt to be overlooked. On account of the absence of mouth-breathing and other symptoms of nasal obstruction, the possibility of adenoid vegetations has been ignored. In these cases careful inquiry will usually elicit the history of frequent colds, or what is styled "catarrh," as there is more or less serous discharge from the nose, or the child is said to "take cold in the head easily." Digital examination of the naso-pharyngeal vault will reveal a fringe of soft adenoid growth at the upper portion of the posterior pharyngeal wall, not large enough to produce obstruction, but actively secreting. This secretion, if not profuse, is partially evaporated in the nostrils, or if profuse, is discharged from the nostrils or passes backward over the posterior pharyngeal wall, thus provoking cough, when the child is up and about. When the child rests on his back, the secretion naturally flows over the posterior pharyngeal wall,

and a cough is the result. Time and again I have relieved the most obstinate cough by curetting and removing this sponge-like tissue. In one patient, a boy two years of age, who had been coughing hard for ten days with paroxysms and vomiting, a diagnosis of whooping-cough had been made by a member of the family who had seen many cases of whooping-cough, and also by myself. Adenoids were found to be present in a slight degree. Their removal was advised, with the idea of making the coughing attacks less severe, when, greatly to our surprise, the coughing ceased at once, not a paroxysm occurring after the growth was removed. The cough was due to the adenoid vegetations and not to whooping-cough.

Tracheitis (inflammation of the wind-pipe) will produce a cough, severe and intractable, with no signs in the chest. In these cases, however, the cough is usually sudden in its development. It is often accompanied by slight fever, and if the child is old enough he will aid us by referring to the sense of discomfort and tightness which exists over the upper portion of the chest. Sometimes the sensation will be described

as a burning, which is located directly over the trachea.

TONSILLITIS

Tonsillitis, or inflammation of the tonsils, is a very common ailment among children during the colder months. It usually follows exposure. The onset is generally sudden, with high fever,— 103° to 105° F.,—pain, swelling, headache, and general muscular soreness. Inspection of the throat will show the tonsils to be swollen and inflamed. The entire throat generally has a congested appearance. No other changes may be noticed. In the majority of cases, however, the tonsils will be found studded with small white dots of a cheesy material. If the case is seen two or three days after the beginning of the illness the dots may have coalesced, forming large yellowish patches which so closely resemble the appearance of the throat in diphtheria, that it may be impossible for the physician without the aid of a microscope to differentiate between the two diseases. An attack of tonsillitis runs its course in from two to five days.

Cold applications, cold compresses (see cut) to the throat, and cold spongings of the



FIG. 9. COLD COMPRESS

body afford the patient much relief. A dose of castor-oil given at the first symptom of the disorder will always be of value.

COLD IN THE HEAD (CORYZA)

A cold in the head is a very frequent occurrence in the young, and while not serious if the trouble limits itself to the mucous membrane of the nose, it is, never-

theless, a source of much annoyance to both mother and child. The mucous membrane of the nasal passages is congested and swollen. The nostrils of infants in health are very narrow, so that a slight congestion will greatly interfere with the breathing.

The first sign to be noticed is that when the child is nursing he is unable to breathe easily through the nose, and frequent rests are necessary. Sleep, for this reason, is also interfered with. The baby sneezes more than usual and there is a watery discharge from the nose with usually a degree or two of fever. With the onset of the first symptoms, one teaspoonful of castor-oil will be of service. A few drops of melted vaseline or liquid alboline may be dropped into the nostrils every two hours.

The danger from a so-called "cold in the head" rests in the fact that the inflammation does not always limit itself to these parts. It is very liable to extend to other portions of the respiratory tract, terminating sometimes, even if properly treated, in bronchitis or broncho-pneumonia.

BRONCHITIS

Bronchitis may occur as a primary illness, or it may follow a cold in the head, laryngitis, or any inflammatory condition of the respiratory tract. It often occurs as a complication of other diseases. There is almost always more or less bronchitis with measles. In bronchitis we have a serious illness not necessarily serious in itself but mainly so because of the frequency with which it leads to catarrhal pneumonia. Bronchitis in a delicate child requires but a little bad management or neglect and pneumonia will surely develop.

The reason why bronchitis is a dangerous illness in a young child is because of the lack of development of the parts which form the chest walls. The ribs are soft and the muscles weak. The bronchial tubes collapse readily. In an older child the bronchial secretions are coughed into the mouth and swallowed or expectorated. The young infant cannot expectorate. When the secretion is viscid and thick, the weak chest-wall fails to furnish the power required to expel it and instead it is drawn deeper into the

lungs, the smaller tubes become clogged with mucus, the air vesicles collapse, bacteria multiply rapidly in the confined secretions, and pneumonia results.

Bronchitis is indicated by coughing and wheezing, and what the mother often calls "a drawing of the chest." In many cases fever is present in a marked degree. The severity of the cough and the other symptoms depend entirely upon the severity of the lesions. In many cases, if seen early the disease will respond to treatment in a day or two. A generous counter-irritation of the chest with one part of turpentine and three parts of camphorated oil is a useful measure, the applications to be made twice a day—morning and evening. What is better, however, is the use of the mustard plaster, made by mixing one part of mustard with three parts of flour, sufficient warm water being added to make a paste, which may be spread on cheese-cloth or thin muslin. It should be large enough to encircle the chest, fitting the child like a jersey. This is covered with another piece of similar material and the plaster is complete. It should be wrapped around the chest and

allowed to remain from ten to fifteen minutes—until the skin is thoroughly reddened.

Proprietary cough mixtures and home remedies should never be relied upon for the treatment of bronchitis in children.

CROUP

CATARRHAL CROUP; DIPHTHERITIC CROUP

There are two varieties of croup, *catarrhal* and *diphtheritic*: *catarrhal croup* is a catarrhal inflammation of the larynx, and *diphtheritic croup* a membranous inflammation of the larynx.

Catarrhal croup may begin in two ways. The child will suffer from snuffles, indicating a simple cold in the head, which is followed by a slight fever and a mild cough. The cough rapidly becomes worse and is hoarse and barking in character, becoming more severe toward evening. As a rule, the fever is not high. In the evening of the second or third day of the illness, sometimes the first day, signs of obstruction to the breathing become apparent. The inspiration is labored and accompanied by a croaking

sound. The child cannot speak above a whisper.

Probably not over half of the cases show this gradual development. In many the onset is sudden: the child goes to bed as well as usual; after a quiet sleep of a few hours he awakes suddenly, sits up in bed, and with high-pitched cough, straining for breath, he startles the household.

Membranous or diphtheritic croup is much the more dangerous affection, but to the mother there is no means of distinguishing between the two forms, unless the child has diphtheria and the croup follows. The two forms may appear in identically the same way, although the onset of the diphtheritic croup is usually more gradual.

In case of a severe cough or a sharp attack of croup in one of the children, the mother or nurse in charge has three duties to perform: send for the doctor, isolate the child, and give him a teaspoonful of the syrup of ipecac, which may be repeated in fifteen minutes if there is no vomiting. Every case of croup should be quarantined until the nature of the trouble is determined. If it is catarrhal, no harm will be done by the

isolation. If it is diphtheritic, the lives of other members of the household may be saved by the precaution. If a croup-kettle

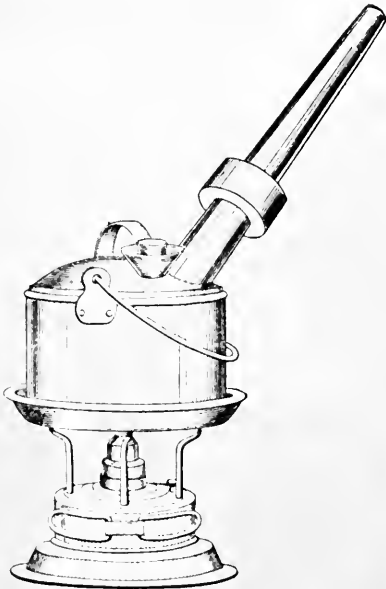


FIG. 10. THE HOLT CROUP-KETTLE

is at hand (see cut 10), it should be brought into use after making a tent by covering or draping the crib with a sheet (see cut 11). One teaspoonful of tincture of benzoin is

added to one quart of water and placed in the kettle, which is heated by the alcohol

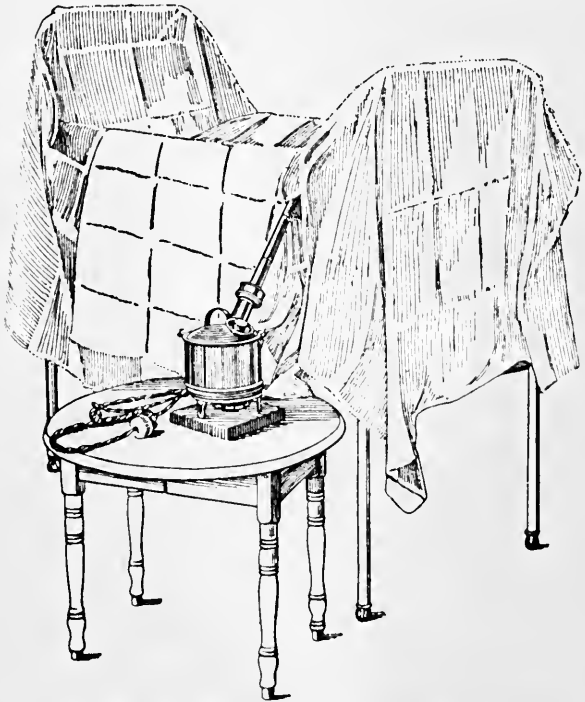


FIG. II. CRIB PREPARED FOR STEAM INHALATION

lamp attachment. A cold compress (page 169) applied to the throat is often beneficial also.

It should be thoroughly wrung out, covered with some dry material, and changed every twenty minutes. The child should receive a laxative as early as possible in the attack.

PNEUMONIA

Pneumonia, sometimes referred to as inflammation of the lungs, or lung fever, occurs very frequently in infants and young children. It may appear as an independent affection or as a complication of other diseases. There are two varieties which are commonly met with in the young: *lobar pneumonia*, which corresponds closely to the adult type, and *broncho-pneumonia*, or, as it is sometimes called, *catarrhal pneumonia*.

Lobar pneumonia usually results from exposure—a sudden chill of some part of the surface of the body.

Broncho-pneumonia is usually the outcome of bronchitis or what is known as “a common cold.”

The latter is most frequently seen in children and is usually the variety which occurs as a complication of other diseases. The mode of onset of the two types varies. With

lobar pneumonia the onset is sudden there may be a chill or a convulsion. Sometimes vomiting ushers in an attack. The fever rises rapidly to 103° or 105° F. The face is flushed and wears an anxious expression; the breathing is rapid, the respirations being from 40 to 60 a minute, the expiration being accompanied by a peculiar, partially suppressed sigh. The child is very restless, often delirious, or there may be stupor, with symptoms pointing to a complicating meningitis. All the symptoms disappear with the advent of the crisis, when the fever suddenly abates and fails to rise again. The crisis may be expected any time between the third and eleventh day of the recovery cases. In the majority of my cases it has occurred from the fifth to the seventh day, in a few not until the ninth day, and in two it did not occur until the eleventh day, and in one on the fourteenth day.

The prognosis of lobar pneumonia in children is good. A very small percentage fail to recover. A patient of mine, a three-year-old boy, passed through two distinct attacks in a single winter, the second after an interval of ten weeks.

In catarrhal or broncho-pneumonia the story is different. There may be a pneumonia at the commencement of the illness, but according to my observation, which covers several hundred cases, the majority begin with symptoms of a common cold or bronchitis, the lungs becoming involved gradually. In other words, the onset is gradual, not sudden, whether it occurs independently or as a complication of some other disease. There are cough, often distressing, moderate fever, rapid breathing, loss of appetite, and, later, emaciation. Broncho-pneumonia in children is an affection of extreme gravity. There is no well-defined crisis as in lobar pneumonia. The disease may last a week or two weeks, or it may continue for months. In one of my cases, a child eighteen months of age,—the disease continued three months before the low fever abated and the lungs were clear. The recovery cases often require from three to four weeks before the lungs may be considered normal.

The sick-room of a patient ill with pneumonia should be large, with one window open at least four inches from the top on the

coldest days. The temperature of the room should not be below 55° F. or above 65° F. The child should be put on a reduced diet of animal broths, thin gruels, and diluted milk.

Prevention resolves itself into proper care of the child, proper clothing, avoidance of unnecessary exposure, and an appreciation of the fact that with a child it is almost as necessary to call a physician for a common cold or bronchitis as it is for scarlet fever or diphtheria.

THE CONTAGIOUS DISEASES

A contagious disease is one due to a specific poison which under favoring conditions possesses the power of reproducing itself in the person of another. The poison of the disease, the *contagium*, may be transmitted either directly by contact with an individual suffering from the disease, or indirectly by means of some person or object, such as the clothing or hands of the attendants, which have been in contact with the one infected. According to my observation, personal contact with the infected is required in a large

proportion of cases. Measles and whooping-cough are unquestionably the most contagious diseases of this type, requiring for their transmission only a very slight exposure. German measles and chicken-pox are next in order of communicability, while scarlet fever is less contagious than any of those mentioned—a close contact and a fairly long exposure being usually required. Clothing may be infected by the *contagium* of scarlet fever and diphtheria, the poison remaining inactive for a long time.

A little girl, four years of age, who lived in one of the Hudson Valley villages, contracted scarlet fever while on a visit to a neighboring town; the case was a severe one and the child died. A coat which she had worn when stricken with the disease was carefully laid away in a bureau drawer. Twelve months later the mother decided to give the coat to a neighbor's child. It was removed from the bureau, which had remained unopened, and placed on the little one. In five days she was attacked with scarlet fever. These were the only two cases that had occurred in the village. The second child had not been away from home

and the jacket was the only possible means of infection.

Diphtheria through personal contact alone is probably the least contagious of any of the diseases belonging in this group. Its virulence, however, renders every preventive measure imperative.

Smallpox, thanks to compulsory vaccination, is seen so rarely that it need not be considered here.

SCARLET FEVER

Scarlet fever is one of the most important of the contagious diseases, and whether a case is mild or severe it requires the greatest watchfulness on the part of both physician and nurse, nor can their vigilance be safely relaxed until the patient has been apparently well for at least five or six weeks. The period of incubation varies considerably. In the majority of cases the first sign of trouble is noticed from three to five days after exposure. In one of my cases twelve days elapsed between the time of exposure and the initial symptom. If, however, nine days pass without evidence of illness, the

child may ordinarily be considered safe, but the exposed should not come in contact with other children until at least fourteen days have elapsed. Infection usually takes place from direct contact, although the *contagium*, the nature of which is unknown, may be carried by means of clothing, toys, books, or a third person. Doctors who do not wear gowns while attending scarlet fever patients, and are careless about washing their hands after examining such cases, may themselves carry the disease. One attack usually protects against a second, although cases are on record of the occurrence of two or three attacks in the same individual.

The onset of scarlet fever is sudden, often with vomiting, occasionally with a convulsion, always with fever and sore throat. The fever is usually high, 103° to 105° F., though it may be low,— 101° to 102° F. When the latter is the case the course of the disease will probably be mild. Whether the fever is high or low, the deeply red, congested throat is usually present. From twenty-four to thirty-six hours after the initial symptom the rash makes its appear-

ance. In many mild cases it will be the first symptom noticed. The character of the rash, its intensity, and the height of the fever indicate fairly well the severity of the attack. The chest and abdomen are usually the site of the first appearance of the rash. It is composed of minute red dots so closely set together as to give the skin a deep scarlet color. The extent of the rash varies greatly; in some cases it covers the entire body and lasts from six to seven days. In others, it is much less distinct, covering only limited areas, and may last for only a few hours. In one of my cases it was visible for only six hours after it was first noticed; while in all other respects the case was one of typical scarlet fever. Ordinarily the rash begins to fade about the fourth or fifth day and is followed by the desquamation period. This is also variable in extent; there may be but a light peeling of the palms of the hands, and of the finger-tips about the nails, or it may be most profuse, the epidermis peeling off in large flakes from the entire surface of the body. From two to three weeks are required to complete this process.

Complications are a common occurrence

in scarlet fever, and it is the complications which are usually the cause of death in the fatal cases. The kidneys, heart, lungs, and ears are particularly liable to serious involvement.

An error frequently made is to allow the child convalescent from scarlet fever to be out of bed too early. He should never be allowed to run about before four, or, better still, five or six weeks have elapsed. The peeling may be hastened, the disease curtailed, and the danger of spreading lessened by a daily sponge bath followed by an inunction with sweet oil or vaseline.

GERMAN MEASLES

German measles is a contagious disease of a very mild type, ordinarily the rash being the first sign of illness. This may have been preceded, however, by a slight chilliness and soreness of the muscles. The eruption is of a reddish-brown color and appears more extensively on the face and chest than on other parts of the body. The spots vary in size from a pin-head to a flaxseed. In well-developed cases the rash may cover

the entire surface of the body. The temperature is usually low and lasts but a day or two. I have never seen it above 102° F. There is little or no inflammation of the eyes, nose, or throat, in marked contradistinction to measles. There is no cough and the child suffers very little inconvenience. The glands behind the ear and at the sides of the neck are almost always enlarged and sensitive,—this with the fever and the rash comprising the chief symptoms of the disease. The duration of the rash varies from one to three days. Usually at the end of forty-eight hours the skin will be found clear.

My treatment is: two or three days in bed and a light diet.

MUMPS

Mumps is an inflammation of one or both parotid glands. One attack usually protects against another. The disease is usually acquired by contact with the infected. It is extremely doubtful that it can be carried by a third party. The period of time required for the development of the disease after exposure varies considerably; but from

two to three weeks may be considered the period of incubation.

The first symptoms are similar to those of the other contagious diseases. There are loss of appetite, headache, languor, and slight fever. In addition to these general symptoms, the child complains of pain upon swallowing, or upon moving the jaw. Vinegar or any acid substance taken into the mouth causes considerable pain or discomfort behind the jaws and under the ears. In a few hours there will be noticed a swelling of the parotid gland in front of and under the ear. Both sides rarely begin to swell at the same time; the swelling of one gland usually precedes that of the other by a couple of days. It increases gradually for two or three days until it reaches its height, when it begins to subside slowly, reaching the normal in eight or ten days from its beginning. The temperature during the attack ranges from 100° to 103° F.

The complications of mumps in children are few, and the disease cannot be regarded as dangerous. Acute Bright's disease followed an attack of mumps in one of my patients. Swelling of the testicles is a

comparatively rare occurrence. Ear disease is an infrequent but possible complication. Multiple abscesses may develop in the parotid gland, but this is also a very rare occurrence. Other acute glandular swellings at the angle of the jaw are often mistaken for mumps; in mumps, however, the swelling is always in front of, under, and behind the ear. A simple glandular enlargement may be located at any point under or behind the jaw.

A child with mumps should be kept in bed until the swelling has subsided, and given plain, easily digested food. The mouth should be rinsed after each meal with a saturated solution of boracic acid. For the pain and discomfort caused by the swelling, hot applications answer best. Flannel wrung out of very hot water and bound upon the parts always furnishes some relief. The flannel should be kept hot by repeatedly dipping it into hot water. The heat will be retained better if the flannel is covered with oiled-silk.

WHOOPIING-COUGH

In whooping-cough we have one of the most

dangerous diseases of childhood, dangerous in the extreme for the very young, the delicate, and the rachitic. In itself it is seldom directly fatal, but the frequent complications of catarrhal pneumonia in winter and intestinal diseases in summer make it indirectly responsible for the loss of many lives.

The period of incubation ranges from seven to fourteen days. At the commencement of the disease the cough is not severe and often cannot be distinguished from that of bronchitis or a common cold. The cough, however, does not respond to treatment for coughs and colds; it increases in severity, becoming paroxysmal in character and worse at night. During the paroxysms the eyes water, the face becomes red and congested, the seizure often ending in vomiting. The characteristic whoop usually develops after ten days or two weeks. In the mild cases there may be but two or three paroxysms daily; in the severe cases there are usually from twenty to thirty in twenty-four hours. I have seen a few cases in which the disease was so mild that the whoop never appeared, while others whooped but once during an

entire attack. The disease varies not only in its severity, but in its duration as well. Occasionally cases are seen which run the entire course in four weeks; unfortunately, they are rare. As a rule, from eight to ten weeks elapse before the child may be considered well.

As long as the child continues to whoop, or the cough is distinctly paroxysmal, it is not safe for him to come in contact with the unprotected. The active stage, during which the paroxysms are frequent and severe, rarely lasts longer than two or three weeks. Sometimes after a period of three or four months without whooping, the child takes cold, develops a cough paroxysmal in character, and the whoop returns; but this does not mean that there is a return of the whooping-cough, and such children need not be quarantined.

Whooping-cough cannot be cured; it must run its course. The author's observations, which cover the management of over one thousand cases, prove that every case may be ameliorated and its course perhaps shortened. The home treatment demands an abundance of fresh air. The child should

spend the greater part of every pleasant day out of doors and sleep with the window open an inch or two from the top, regardless of the weather.

DIPHTHERIA

Diphtheria is a disease due to a germ which is known as the Klebs-Loeffler bacillus. It lodges upon the mucous membrane of the throat or nose, and there starts up a process known as diphtheria. The disease is usually of slow and insidious onset, requiring two or three days for its complete development. The period of incubation varies greatly; a child may develop diphtheria within twenty-four hours after exposure, or it may be delayed a month or six weeks. In children who have been exposed, there should be a microscopical examination of the secretion from the throat, which may settle the question as to the child's liability to contract the disease.

The first symptoms are fever and restlessness, loss of appetite, and disinclination to play. The child may complain of pain upon swallowing, and in many cases, very

early in the attack, swelling may be noticed at the angle of the jaw. Inspection of the throat shows the characteristic patches of the membrane. In some cases these patches resemble a thin layer of putty spread over the parts. Others present the appearance of a very light-yellow paint splashed upon the tonsils and adjacent parts. The membrane may be located in the nose, throat, larynx, eye,—in fact, any mucous surface may become infected; fresh wounds may also become infected. The usual sites, however, are the nose, throat, and larynx. The disease may be transmitted by direct contact, by means of contaminated clothing, toys, pictures, books, or the germs may be carried on the hands or clothing of an attendant.

One attack does not protect against another. There is evidence that a certain degree of immunity is established, but it probably is not effective for more than a few months. Diphtheria does not run a definite course, like the other infectious diseases. We cannot say that certain definite signs will be present on certain days. It is the most uncertain and treacherous disease with which we have to deal.

The only treatment of value other than supportive measures is the use of antitoxin, which must be given *early* in the disease—as soon as a diagnosis of diphtheria is made. In fact, I believe it is advisable to give it in all cases where there is any uncertainty as to whether the case is tonsillitis or diphtheria. Much valuable time may be lost by delay. The antitoxin should be repeated in from twelve to twenty-four hours if improvement does not follow. I have been obliged in four cases to give three injections of 5000 units each. In one severe case, injections of 40,000 units were required. In the majority of my cases two injections of 5000 units each were required.¹ No harm results from the use of antitoxin. I have employed it in a great many cases and have lost but two. One child I did not see until the fourth day of its illness, which was too late for the antitoxin to be of any service. The general mortality of diphtheria has been markedly reduced through its use. During convalescence, the child must not be allowed to

¹ In the very severe cases in which there is early involvement of the nose or larynx, from 8000-10,000 units should be given at the first injection.

mingle with other children until a bacteriological examination of the throat shows it to be free from diphtheritic germs.

The instructions for the preparation of the sick-room, for disinfection and quarantine, will be found on pages 198-201.

CHICKEN-POX

Chicken-pox is one of the milder contagious diseases. Among several hundred cases I have seen but two that were severe enough to endanger life.

The period of incubation is quite long,—from fourteen to twenty-one days. There is slight fever at the onset, rarely high enough, however, to be noticed by the mother or nurse. More frequently the first sign of the disease is the characteristic eruption which may appear on any portion of the body, the scalp sometimes being particularly involved. The rash consists of very small blisters which from a distance give to the skin the appearance of having been sprinkled with water. The fluid soon disappears, leaving a dark-colored crust. When the crusts fall, a small scar is often

left, which may remain for several months. In an ordinary case the skin will not be clear before the end of the third or fourth week.

The child should be kept indoors during the attack, and given a reduced diet. The itching is often relieved by sponging with a weak solution of alcohol in water,—four ounces to a pint,—followed by a gentle application of vaseline.

I never advise quarantine against chicken-pox except to avoid needless exposure of very young or delicate children in the family. The patient should not return to school or be allowed to mingle with other children—in short, is not to be considered—well until the skin is clear.

MEASLES

The incubation period of measles—the time required between the exposure and the development of the first symptom—varies between nine and twelve days. One attack usually protects against a second. This, however, is not invariably the case. I have a patient, a young girl, eighteen years old, who contracts measles every time she is

exposed. She recently passed through her fourth attack, which was most severe.

The onset of the disease closely resembles that of a common cold. The symptoms are slight fever, 100° to 102° F., redness of the eyes and intolerance of light, a watery discharge from the nose, a dry, hard cough, pain on swallowing, and loss of appetite. The peculiar swollen, congested condition of the eyes and face often makes a diagnosis possible before the appearance of the rash. This usually first appears, from the second to the fourth day of the illness, upon the face and chest. At first there are small, irregularly shaped spots said to resemble fleabites. The spots coalesce, the rash extends, and in one or two days the greater portion of the skin is involved. The rash remains at its height for two or three days, when it begins to fade, and in two or three days more the skin becomes clear. With the subsidence of the rash, desquamation or peeling of the skin begins. This consists in the shedding of fine, thin scales. The fever and prostration keep pace fairly well with the rash. The fever, which may range between 102° and 105° F., reaches its highest point with

the complete development of the rash. With the fading of the rash the fever also moderates. The cough in measles is hard and dry in character and is often quite severe. It must be remembered that the congestion of the respiratory mucous membrane which causes the cough is a part of the disease. The cough may be relieved, but it will not subside until the disease has run its course. There is always considerable involvement of the eyes, the lids being red and swollen, with a free secretion of watery mucus. In many families but little attention is paid to measles—it is regarded with more or less indifference. While, in most instances, the disease may not be particularly dangerous, we must remember that it is sometimes quite virulent, and domestic treatment should never be relied upon. There is always more or less bronchitis, which in young and delicate infants constitutes a severe complication, leading, as it often does, to catarrhal pneumonia.

The eyes should be washed daily with a saturated solution of boracic acid. Their sensitive condition requires also a darkened room, and failure to appreciate this fact

has often resulted in their permanent injury. A darkened room, however, does not mean a room devoid of ventilation; fresh air for a patient with a contagious disease is almost as important as nourishment. The diet must be simple; only fluid diet should be given to "runabouts," while for infants the usual milk mixture should be diluted with boiled water from one-third to one-half. The child should have a lukewarm sponge-bath every day, followed by an inunction of vaseline, which not only relieves the itching, but renders the patient much more comfortable.

Children convalescent from measles should not be allowed to go to school or mingle with the unprotected until two weeks after the completion of desquamation.

SICK-ROOM FOR CONTAGIOUS DISEASES

QUARANTINE

A child ill with a contagious disease should always be isolated, whether there are unprotected children in the family or not. Quarantine can be carried out only when the child is placed in a room alone with the

nurse or mother, and neither allowed to leave the room or in any way to come in contact with other members of the family. If possible the room should be on the top floor of the house. The furniture should be of the simplest,—no fancy curtains and no upholstery. A perfectly bare floor is best. If two nurses are required, two isolating rooms will be necessary, one to be used as a sleeping-room. The meals should be carried on a tray and placed upon a chair outside the closed door of the isolating room. The dishes containing the food are to be removed by the person isolated. After use, before returning the dishes to the chair outside the door, they should be placed for five minutes in boiling water. Only wash goods should be worn by the attendants, and their clothing, with bed linen when changed, should be placed in boiling water—one ounce of carbolic acid to two gallons of water—before it is sent to the laundry.

When other members of the family are allowed to go at will into and out of the isolating room, the value of the quarantine is practically lost. If the illness is of a serious nature, such as scarlet fever or

diphtheria, the other children of the family should be sent to other quarters; particularly should this be done if the family occupy an apartment.

DISINFECTANT DRUGS

The erroneous views possessed by many concerning disinfection often result in much harm. Too many are satisfied by the use of disinfectant solutions and drugs at the expense of cleanliness. Any agent that will destroy germs is a disinfectant. Disinfection really means cleanliness. Disinfectants can never supplant hot water, common yellow soap, and a nail-brush. Dipping the hands into a solution of carbolic acid or bichloride of mercury will not make them clean, much less sterile. Sprinkling either of these substances upon the floor will not clean the floor or be of one particle of service. Scrubbing the floor of the sick-room once a day, using hot water, sapolio, and a stiff brush, will do more to prevent the circulation of the germ-laden dust than any disinfectant which can be used. I recently saw a young mother change the baby's

napkin, immediately after which, with hands untouched by soap or water, she very carefully washed out the baby's mouth with the boracic acid solution! The young mother was anxious to do her full duty by the child, but had never learned the rudiments of disinfection.

Disinfectant solutions and drugs are of much service when used after a thorough scrubbing with hot water, soap, and brush,—never before.

DISINFECTION AFTER CONTAGIOUS DISEASES—FUMIGATION

Before being allowed to resume his place in the family, the child who has recovered from a contagious disease should be given a tub-bath, with a vigorous scrubbing with soap and warm water. The hair should be washed with a 1 to 2000 solution of bichloride of mercury, and the child dressed in fresh clothing outside the sick-room.

The soiled clothing and the bedding which can be washed should be put into a solution of one ounce of carbolic acid to two gallons of water. The vessel should be covered and

removed to the laundry and the clothing boiled thirty minutes. The bedding and such articles as cannot be washed should be spread over the furniture in readiness for fumigation.

The windows and doors must be closed and sealed, when the room can be fumigated with sulphur or formalin. If sulphur is used, three pounds of roll sulphur are required by the New York Health Department for every thousand cubic feet of air space. The sulphur is placed in an iron vessel which, as a precaution against fire, should stand on a large piece of tin or zinc. Alcohol is poured over the sulphur and ignited, after which the room should not be opened for twenty-four hours. If the air in the room can be charged with a moderate amount of vapor from an open vessel on a stove or radiator, the sulphur disinfection will be more complete. Formalin acts as a much better disinfectant and is far less objectionable than sulphur. The formalin apparatus with directions for its use can be rented at a moderate price from most New York druggists.

After the fumigation, the carpet or rugs,

mattresses and pillows, are taken charge of by the health authorities in the larger cities, steamed, and returned in two or three days free of expense to the owner. Otherwise such articles should be sent to the cleaner and the mattresses and pillows re-covered. The floor of the room and the woodwork should be scrubbed with hot water, brush, and soap. When dry they should be washed with a 1 to 2000 solution of bichloride of mercury. The furniture should also be washed with the bichloride solution. If the walls are papered, they should be wiped with cloths moistened with this solution; but it is better to have the room re-papered. If the walls are painted, they should be washed with the solution. If the walls can be newly papered, painted, or kalsomined, much greater security will be enjoyed by the future occupant.

THE DELICATE CHILD

In work among children one frequently meets with those who, while they cannot be said to be suffering from any disease or pathologic condition, yet are inferior in

physical development, lack endurance, and possess poor resisting powers. They are often under height, always under weight, and, in short, have so many characteristics in common that they constitute a class by themselves, and as such warrant our attention.

Normal development.—The average child, at the various periods of early life, conforms with a certain degree of regularity to the mental and physical development which by long association we have come to regard as normal. Thus a standard may be said to have been established, and it is up to this standard that we expect the growing child to measure. This is what we look upon as the average of physical and mental development. A few children exceed these requirements: they are stronger and larger at the sixth month than the average child at the ninth month. Again, older children at the fourth or fifth year are in every way equal to their normal playmates a year or two older.

Abnormal development.—On the other hand, there are children who are born with a reduced vitality, or who, through faulty

management, usually in relation to feeding, acquire a reduced vitality. Semi-invalid adults almost invariably beget semi-invalid children. If the parents are of average health and of good habits, and the debilitated condition of the child is due to faulty management and nutritional errors, the result of proper dietetic and hygienic management is usually prompt and satisfactory. With the persistently delicate, the offspring of physically enfeebled parents, the results are less satisfactory, but improvement is always possible.

Management.—By proper regulation of the habits of a delicate child, as regards all the details of his daily life, a far better adult is produced than if no such effort had been made. In other words, a diet and general régime of life best adapted to the individual in question will invariably improve the physical condition of that individual. This applies to the strong as well as to the delicate, to the growth and development of the young of the lower animals as well as to the offspring of man. It is the poorly developed, delicate child that we are particularly to consider—the undersized, frail, small-boned,

under-weight child, whose appetite is persistently poor or capricious, who sleeps poorly, tires easily, is usually constipated, who is subject to catarrhal conditions of the respiratory tract, and whose powers of resistance generally are diminished. In not every delicate child will all these symptoms be found. Under-weight and one or more of the other conditions referred to will usually be present.

On assuming the management of one of these children it is absolutely necessary to make a thorough examination, followed in some instances by a few weeks' observation, in order to become acquainted with the case in its individual aspects, to learn idiosyncrasies, and to eliminate the factor of actual disease as a causative agent. When we demonstrate to our satisfaction that the child is free from such diseases as tuberculosis, kidney disease, and malaria; when we have eliminated by properly directed treatment all causes, such as adenoids, phimosis, adherent clitoris, vaginitis, or parasitic and irritant skin lesions, which may have had a deterrent influence upon growth; and when we have satisfied ourselves as to the actual

condition of our patient, we are in a position to lay down definite rules of management.

Every child has a distinct function to perform. As soon as he is born he is confronted with a serious problem—the problem of growth, physical and mental. Inasmuch as this growth and development depend, above all things, upon a properly adapted food supply, it must be our first step to provide such nutriment as will be most conducive to it. As growth takes place in all parts of the body through cellular activity, the nutritive elements which support cell proliferation must be important constituents of the diet, and among these the proteids are of prime importance; hence in the management of these children a point to be remembered in the adaptation of the food is the necessity of feeding as rich a proteid as the child can assimilate. The younger the child, the greater the necessity for growth.

Regular weighings necessary.—An infant should be weighed at regular intervals, and if under one year of age, should not be considered as doing even passably well if not gaining at least four ounces weekly. When

a baby remains stationary in weight its development is invariably abnormal. When stationary or when only a slight gain of one or two ounces weekly is made, we will always find after a few weeks that there is malnutrition, in spite of the apparent gain, as will be evidenced by the symptoms of beginning rickets—anæmia, the characteristic bone changes, flabby muscles, and a tendency to disease of the mucous membranes. Delicate infants should be weighed daily at first; then, as improvement takes place, at intervals of two or more days, but never less frequently than once a week, if under one year of age, no matter how vigorous they may become. The weighing keeps us directly in touch with the child's condition, but since the increase may be in fat alone, an occasional examination of the child stripped is necessary to tell us whether there is substantial growth in bone and muscle.

Feeding delicate infants.—When it is demonstrated that a child will not thrive on the breast of the mother, another breast should be substituted, or an adapted high-proteid cow's milk should form the diet in

part or in whole. If the child is bottle-fed and it is demonstrated that proper growth and development are impossible on cow's milk, on account of proteid incapacity, then a wet-nurse should be secured.

When, after the first year, more liberal feeding is allowed, the necessity for a high proteid in the food selected is as urgent as before. This applies to those children who are brought to us showing evidences of late malnutrition, as well as to those whom we have had under our care from early infancy.

An important element in the diet up to the third year, is milk. A child from the first to the third year ought to receive one quart of milk daily. Unfortunately, many debilitated children have a very poor capacity for fat assimilation. When given full milk in as small an amount as one pint daily, they often develop foul breath, coated tongue, and loss of appetite, or they suffer from frequent attacks of acute indigestion. The milk is necessary, not because of the fat, which can easily be dispensed with, but because of the high percentage of proteid which it contains—from three to four per

cent. When this fat incapacity exists, the milk is said to "disagree," but skimmed milk will be taken without inconvenience. Enough sugar may be added to bring the percentage up to seven, in order that it may replace the fat, for fuel. Skimmed milk with sugar added furnishes a food of no mean order. Too much milk, however, must not be given. When large quantities, more than one quart daily, are taken, the desire for more substantial nourishment, such as eggs, meat, and cereals, is removed.

At the completion of the first year, keeping in mind a high proteid, begin with scraped beef, at first one teaspoonful once a day, in addition to the cereal and milk. If this is well borne, and it usually is, a teaspoonful may be given twice a day, and later three times a day. It may be given immediately before the bottle-feeding. Eggs should be brought into use from the twelfth to the fifteenth month. At first one-half an egg, boiled two minutes, is given mixed with bread-crumbs. If well borne, a whole egg may be allowed. The cereals used should be those most rich in vegetable protein, such as oatmeal, containing 16 per

cent. of proteid, dried peas, 20 per cent. of proteid, and dried beans, containing 24 per cent. of proteid. The peas, beans, and lentils should be given in the form of a purée.

Diet after the first year.—If the child during the second year has an indifferent appetite, reduce the quantity of milk; never allow more than one pint of milk daily for the first week or two. Many delicate children who apply for treatment after the first year of age have been subjected to as grave errors in diet as are seen among the bottle-fed. Starch foods and milk oftentimes furnish the only means of nutrition up to the fourth or fifth year, the starch used being generally in the form of bread, crackers, and indifferently cooked cereals. In one case four quarts of milk were taken daily by a boy of seven years.

It will be seen that it is our aim in this class of children—the delicate, undersized, slow-growing class—to give as liberal a nitrogenous nourishment as is compatible with the digestive capacity of the patient. But if the child has had rheumatism, or if there is a tendency to lithiasis, the use of a large amount of meat is contra-indicated.

It is in such children that the high-proteid cereals are particularly valuable. In a general way, from early life the diet of the delicate child should consist of milk, suitably adapted, with highly nitrogenous cereal added, when permissible. Many delicate children of the "runabout" age who cannot digest milk containing 4 per cent. of fat will easily digest butter fat when spread on bread or potatoes. In this way I often use it to supply fuel to act as a proteid-sparer. Oatmeal-water or oatmeal-jelly, mixed with the milk, should be order at the seventh month. When age allows, the addition of raw or rare meat, poultry, eggs, and purées of dried peas, beans, and lentils should be given. Boxed "ready to serve" cereals are never given; raw cereals are used, which are cooked three hours. While a high-proteid diet is desirable, other things are necessary. Green vegetables, animal fats, the ordinary cereals, cooked and raw fruits, are required to furnish the necessary acids and salts, as well as the necessary variety. In short, the ideal diet for a delicate child is that combination of food which, while imposing the least burden upon the

digestive organs, supplies the body with material exactly sufficient for its needs, and such a food must be rich in nitrogen. (See dietary, page 73.)

Baths.—On account of the fear that a delicate child may take cold, the bath is often omitted. Every child, both the well and the delicate, after the second week should be tubbed daily. The delicate particularly require it. The salt bath (page 117) is usually advised. The best time for giving the bath is at bedtime, and in order to avoid all chance of exposure the temperature of the room should be elevated to 80° F. The temperature of the water may vary. It should never be above 95° F. except for very delicate young children in whom there is a tendency to a subnormal temperature. Even in these cases the temperature of the bath should never be higher than the temperature of the body. In the frail and in the very young the bath should not be continued over five minutes. In older children, those of eighteen months or over, if the physical conditions allow, a distinct advantage will be gained by a reduction of the temperature of the bath while the child is in

the water. An immersion in water at 90° F. followed by a gradual reduction during the space of five or six minutes to 70° F. should, upon brisk rubbing, be followed by a quick reaction. If the reaction is not good, if the extremities are cold and are slow in becoming warm, the reduction in the temperature should be less or none at all. In the very poorly nourished, a reduction below 80° F. should not be attempted. Following the drying process, primarily for the benefit of the massage, goose oil or olive oil should be rubbed into the skin over the entire body for from five to ten minutes. The bath and the massage inunction, besides favorably influencing nutrition, are a very effective means of inducing sleep.

Fresh air.—Delicate children are usually deprived of a proper amount of fresh air, for the same reason that they are insufficiently bathed—the fear of making them ill. All children need an abundance of fresh air, both in illness and in health. The robust and the delicate require it, and to the delicate it is much more essential than to the robust. As many hours daily as practicable should be spent out of doors.

The time thus spent depends upon the season of the year and the residence of the child, whether in the city or the country. In the city, during the colder months with pleasant weather, the child should spend at least five hours daily in the open air, dividing the day into two outing periods—from 9 to 11.30 in the morning and from 2 to 4.30 in the afternoon. On very cold days, 20° F. or below, on stormy days, and on days with very high winds, the child is given his airing indoors. He is dressed as for out of doors, placed in his carriage, and left in a room, the windows on one side of the room being open. Not infrequently during February and March delicate children will be prevented from going out of doors for several consecutive days. If some means for a daily systematic indoor airing is not provided, these children will often go backward, no matter how excellent the other management. The first symptoms are loss of appetite and the ability to assimilate the food. In my private work among marasmus cases, the child is placed in the baby-carriage or in a basket and allowed to rest before an open window for ten or

twelve hours of every twenty-four, with a hot-water bottle at his feet. Here he is fed, being removed only temporarily to warmer quarters for a change of napkins. I have several roof gardens in operation. A boy patient nine months of age has been in the street only once in four months, then only in going to church to be baptized.

Sleep.—The delicate child requires no more sleep than does the strong, and the rules governing this matter at the various periods of life are the same both for the strong and for the weak. (See Sleep, page 299.) The sleeping-room of the delicate child should always communicate with the open air by a window, either directly or through an adjoining room. A satisfactory method of ventilation is by the window-board (page 13). The child should occupy the room alone, if possible, sharing it neither with an adult nor another child. This applies to all ages, but is particularly necessary after the second year.

The nursery.—The temperature of the nursery, day or night, should never be above 70° F., during the colder months, and in the case of the very young, or in those who

are difficult to keep covered, it should not go below 65° F. at night.

Delicate children of the "runabout" age are very susceptible to colds. In the management of such children it is necessary to use every precaution against exposure. The most frequent way of exposing a child to cold is by allowing him to sit on the floor. To keep the child of from ten months to three years of age off the floor during the winter months, and thereby to eliminate this means of exposure, is a very difficult matter. In fact with active children, learning to walk, or who have just learned to walk, it is practically impossible under the usual conditions. During the colder months there is always a current of cold air near the floor, and allowing the child to creep in winter, even if the floor is protected by rugs and carpets, is one of the surest ways of permitting him to take cold. If he is allowed to walk on the floor he is soon very sure to sit down. If he is not allowed to creep and walk about at will, he will not get the proper exercise and will show faulty development. For such cases I have found the exercise pen of immense service (see Fig. g.). After

being dressed, washed, and fed, the child is placed in the pen, on a rug if desired. Toys are given him and the door is closed. He can now roam about at will, stand up, sit down, creep, or walk without the slightest danger from drafts.

Influence of climate. —Much has been written regarding the influence of climate in the type of case we are considering. According to my observation, this matter does not deserve the attention it has received. The city child in a well-to-do family is, as a rule, better off for eight months of the year in his own home with its usual conveniences. The benefits attributed to change in climate are usually the result of a change not of climate but to more fresh air, which is afforded by the larger rooms of the hotel, with its loosely constructed doors and windows; and since the parent is desirous that the child shall receive the full benefit of the change, he is kept in the open air for a much longer time than when at home. The air at such a place is more expensive, and consequently more appreciated than the air at home. With sufficient heat and proper ventilation, we may make our own climate. It is not

to be denied, however, that a change of residence for a few weeks from New York to Lakewood or Atlantic City during March and April is sometimes of advantage.

From the first of June to the first of October the delicate child should not remain in New York City. The humidity and the heat which may prevail for protracted periods during this time render it unsafe, particularly during July and August. The seashore for the entire summer is not to be advised. The children whom I have sent inland to the country and to the mountains have, as a rule, returned in the autumn in a much better physical condition than those who spent the summer by the sea.

Clothing.—Thin, poorly nourished children require more clothing than do those physically normal. A fairly good index as to whether a child is sufficiently clad is the condition of his lower extremities. The forearm and hand cannot be relied upon. The legs and feet of every child should always be warm to the touch.

As to the nature of the clothing.—A mixture of silk and wool next to the skin is most desirable. As a second choice a mixture

of wool and cotton is used. The linen mesh, often useful in the vigorous "runabout" is not to be advised in the delicate.

Exercise.—Moderate exercise is to be encouraged. But it should never be allowed to the point of fatigue. In large cities all delicate "runabouts" from three to five years of age should be allowed to walk not more than six blocks in going to the playgrounds. If the distance is greater, the child should ride part of the way, play or walk for a time, and then be placed in the carriage or cart and ride home. Younger children, two or three years of age, should be wheeled both ways and taken out at the park for a run when the weather conditions permit.

Midday nap.—Every day after the midday meal the child, regardless of age, whether two years or six, should be undressed and put to bed for two hours. He should be left alone in the room, and whether he sleeps or not he should remain in bed for the two hours.

Entertainment.—Entertaining play is necessary, but every kind of excitement, such as children's parties, emotional plays at the

theatre, and rough play with older children, should be avoided.

Education.—The delicate child under eight years of age should be taught only to the extent of strict obedience and good habits. Other than this he should be a little animal. There should be no teaching in the ordinary sense of the term, no mental stimulation, until the child is physically able to bear it. When school-work begins, which in this class of children should never be before the eighth year, the studies should be made easy and the school hours short. Such children should never be crowded. I usually direct that they attend only the morning session.

The delicate child should be carefully watched from the time it comes into our hands until it reaches the normal or until the period of development is completed. While the scheme of management as outlined will not always be attended with brilliant results, it will not be in vain. Many lives will be saved, and as a result of the increased acquired resistance, stronger men and women will be added to the race than would otherwise have been possible.

PREMATURE AND CONGENITALLY
WEAK INFANTS

There are comparatively few infants born before the completion of the twenty-eighth week of pregnancy that survive the first year. Reported cases of survival of those born before that time are usually unreliable, as they seldom take the child beyond the third month. The prognosis is influenced by the factors causing the premature birth.

In the management of the premature and delicat newly born there are three points to be considered—the air the child gets to breathe, the nourishment, and the maintenance of bodily heat. It is also to be remembered that we are dealing with an undeveloped body which is not ready for the environment in which it is placed. The premature baby should be handled only when necessary, and then in the gentlest manner. Bathing is often best omitted for the first few weeks, oil being used for cleansing purposes. Because of the undeveloped parenchyma of the lungs usually good fresh air is required. Because of the undeveloped heat-centres the body-heat of the premature infants is

quickly lost and must be maintained by artificial means. The stomach is small and the digestive processes are undeveloped and weak, so that the nourishment should be of the most easily assimilable character.

The maintenance of heat is of the utmost importance. For this purpose incubators and their various modifications have been used from time to time. My experience with incubators has been unsatisfactory. They may by careful watching maintain an even temperature, but all that I have used have been defective in supplying fresh air to the child. My incubator babies have usually done badly. Removal from the incubator was necessary. If the electrotherm (Fig. 12) is not at hand, the padded crib with the child wrapped in cotton and surrounded by hot-water bottles is the best means of maintaining the temperature. A thermometer should rest between the cotton and the bed-clothing as a guide to the nurses in the use of the hot-water bottles. Ordinarily this should register from 85° to 95° F., depending upon the temperature of the child, whose rectal temperature should at first be taken frequently. If there is a

tendency for his temperature to be greatly reduced—below 95° F.—more external heat will be necessary than if the temperature

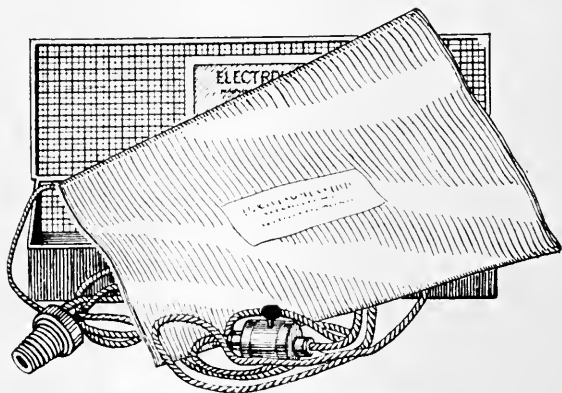


FIG. 12. THE ELECTROTHERM

were 97° or 98° F. The best device among those which I have had an opportunity to observe for maintaining artificial heat is the electrotherm advocated and described by Holt, *Diseases of Infancy and Childhood*, 1906.

“These small heaters are attached to an electric fixture, like a drop-light. A convenient size is from ten to fifteen inches. It is placed between two or three thicknesses of blankets, upon which the infant lies in

its basket or crib. The degree of heat can be regulated according to the amount of electricity turned on. This mode of handling premature infants has been given thorough trial at the Babies' Hospital and has been found to fulfil the indications, with children as small as three pounds and as young as seven months, quite as well as the incubator, while at the same time being free from its dangers. It has not been necessary to raise the general temperature of the room. These patients when kept in the wards at an ordinary temperature have maintained an even bodily temperature much more uniformly than with any other method I have seen, the incubator included."

A mistake often made in the management of premature and delicate infants is that of providing too warm air for respiration, a glaring defect in most incubators. The best means of decreasing a delicate child's vitality and resistance and increasing his chances of pulmonary infection, is to supply him constantly with air at 80° to 90° F. In a modern house the maintenance of this temperature usually means an absence of

change of air and an abundance of bacteria. The patients do best when the temperature of the air they breathe is from 70° to 72° F.

Breast-milk for premature infants born under twenty-eight weeks is almost a necessity, and should always be procured when possible for all premature children. The mother, with the rarest exception, is unable to supply it, so that a wet-nurse should be secured. In selecting a wet-nurse for a premature baby it is advisable to take the wet-nurse's baby also, as the premature infant may not be able to nurse, or if he nurses he will not take all the milk. Pumping the breasts of a wet-nurse will almost invariably dry them up, if her own baby is not with her to furnish the necessary stimulation of nursing. Sufficient milk may be removed by the breast-pump to supply the premature infant if he is unable to nurse, and the wet-nurse's baby will empty the breast. For premature babies who refuse the breast or are unable to take a nipple, the Breck feeder (Fig. 13) may be used as a means of giving nourishment, or gavage, forced feeding with a tube, may be brought into use. This I have been obliged to re-

sort to in several cases. The Breck feeder consists of a graduated glass tube, narrowed at one end. Over this end is placed a small rubber nipple, the other end being closed by a flexible rubber cap. Drawing on the nipple is aided and encouraged by pressure on the air-filled cap. If the breast-milk proves too strong it may be diluted with equal parts of a 6 per cent. sugar solution, from one-half to one ounce of the mixture being given at first at intervals of from one to one and one-half hours. Fourteen to fifteen feedings may be given in the twenty-four hours, the amount depending upon the child's digestive ability. If human milk is not obtainable, whey made from whole milk may be given, or one ounce of gravity cream may be given with one ounce of milk-sugar, one ounce of lime-water, and fourteen ounces of water. Canned con-

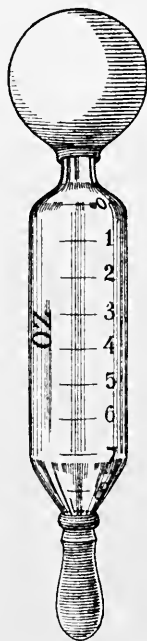


FIG. 13. THE BRECK FEEDER

densed milk, one part, to from 24 to 30 parts of water, may be used with advantage as a temporary feeding measure when nothing better is available. The food strength is increased, the intervals made longer, and the feeding larger, as the patient proves able to assimilate the food.

GLANDS

ACUTE ENLARGEMENT OF THE GLANDS OF THE NECK

A mother is often alarmed by the sudden appearance of a hard swelling in the neck of one of her children. The swelling may appear during the night and increase greatly in size for a day or two, when it may be as large as a horse-chestnut. Such a condition is due to swollen lymphatic glands, which are usually situated just behind the jaw and below the ear. Occasionally the swellings may appear in the soft parts under the jaw. The glands, in the performance of their functions, have become infected and the swelling follows. The cause of the infection will usually be found in a lesion of the mouth or throat. It may sometimes be traced to

a lesion of the skin in the neighborhood of the swelling. Thus, the source of infection may be a decayed tooth, a simple abrasion of the mucous membrane, or an acute inflammation of the part, such as tonsillitis or pharyngitis. In scarlet fever and in diphtheria the glands are often seriously involved. The glandular enlargements, however, which appear suddenly, independent of serious illness, need cause no great anxiety. They terminate usually in one of two ways: they gradually disappear under treatment, or they break down and form an abscess which requires incision and drainage. In either event complete recovery follows.

If the swellings occur in diphtheria or in any other infectious disease, they may constitute a grave complication. With their first appearance, apply cold compresses to the parts constantly until the physician arrives.

CHRONIC ENLARGEMENT OF THE GLANDS OF THE NECK

The lymphatic glands of the neck may be chronically enlarged as a result of tubercu-

losis, syphilis, or local infections from the skin, and a lowered general vitality.

The mother usually notices a slight swelling of the parts, which, upon touch, gives the impression of a hard round body immediately beneath the skin; usually several of these nodules will be discovered. They often extend in chains down the side of the neck; sometimes both sides will be involved. Bunches of glands may also appear under the ear and at the angle of the jaw. They vary in size from a buckshot to a butternut.

Children with a tendency to enlargement of these glands should be constantly under medical supervision.

THE SKIN IN HEALTH

The skin of an infant is extremely delicate and great care is required to keep it in a healthy condition. The secret of a healthy skin in an infant is in proper attention. It must be kept clean and dry. After the daily bath, in which no ingredient other than plain boiled water and Castile soap should enter, the baby must be carefully dried and the folds of the skin and flexures of the joints

thoroughly powdered with equal parts of oxide of zinc and powdered starch. When the napkins are soiled they should be changed at once and the parts again washed and powdered. An occasional sponging, followed by a generous use of powder during very hot weather, will often prevent annoying skin affections, such as prickly heat and eczema.

ECZEMA

Eczema, a catarrhal inflammation of the skin, is a disease to which young children are very susceptible. It appears in different forms, which means that there are several varieties of the disease. Any portion of the skin surface may be involved. The parts most frequently affected are the scalp, cheeks, forehead, and the flexures of the joints, where the skin surfaces come in contact. The cause of eczema may be from within or without. The external causes are all of the nature of irritants. A baby's skin is very delicate, and trifling causes will often produce a great deal of inflammation. Strong soaps, liniments, a sudden exposure

of the moist skin to cold air, excessive perspiration, insufficient bathing, discharge from the ear or nose, all may cause a local irritation and produce the disease. Allowing a child to rest in a soiled napkin is a most frequent cause of eczema of the buttocks, a condition which is elsewhere referred to. The treatment of this type of the disease resolves itself into removing the cause and protecting the parts by means of a suitable ointment or powder.

Among the internal causes, indigestion is by far the most frequent. It is not the delicate child who suffers most from eczema. In many instances the robust nursing and the vigorous bottle-fed baby are the sufferers. The child in other respects appears well, has a good appetite, is bright and happy, and shows normal development. The bright red and sometimes weeping area on each cheek, and the itching, scaly forehead, show clearly that something is wrong, and the error will usually be found in the gastrointestinal tract. The food in some respect is unsuitable, not being properly adapted to the child's digestive capacity. In the breast-fed, regulation of the life of the

mother as regards her diet, exercise, and bowel functions will often effect a cure.

In the bottle-fed, an adjustment of the food to the child's age and digestive capacity and attention to the daily bowel evacuation aids materially in the treatment. Constipation, if present, must be relieved. Local treatment with ointments, washes, and powders are all of little value if the cause of the disorder is not removed. The case may improve temporarily under the local treatment, but within a few days the inflammation reappears in full force.

The strait-jacket.—One of the difficult features of treating children with eczema is the tendency for the child to scratch the

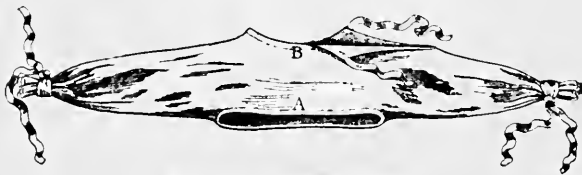


FIG. 14. STRAIT-JACKET

involved parts. This not only keeps up the trouble indefinitely but the nails are often the carriers of infection. I have seen

not only severe dermatitis, but furunculosis and cellulitis develop in this way. One of the best means of preventing scratching is in the modified strait-jacket (see Fig. 14). The jacket is made of muslin and must be fitted to the patient. The child is slipped into the jacket feet first. The opening A encircles the thorax directly under the arms.

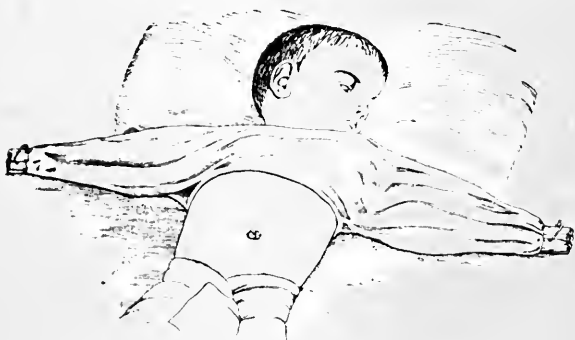


FIG. 15. STRAIT-JACKET IN POSITION

The opening B is closed about the neck with the attached tapes. The cord which is used to close the end of the sleeves may be tied to the sides of the crib or pinned to the bedding. Children readily accustom themselves to the position of lying on the back which

its use necessitates. It is no kindness to allow a child to further irritate the already badly involved surfaces.

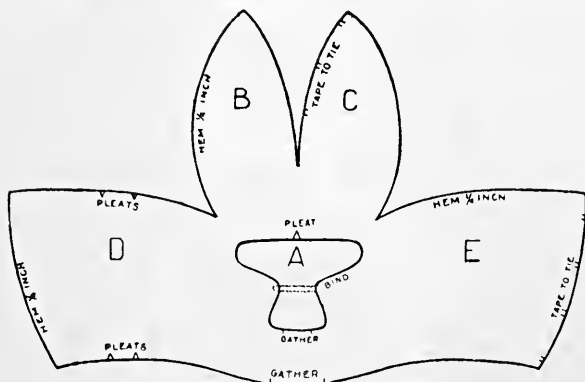


FIG. 16 MASK PATTERN

The mask.—In facial eczema, the itching is often most intense. In order to effect a cure, scratching and rubbing of the parts on any object with which the child may come in contact, must be prevented. The Thomas mask (see Fig. 16) answers this purpose admirably. The ointment or lotion is placed on clean linen which rests on the involved parts. Over this is placed the mask. In Fig. 16 is represented a pattern of the mask.

Opening A is sufficiently large to furnish space for the eyes, nose, and mouth. An



FIG. 17. MASK IN POSITION

elastic band which will be seen to pass over the upper lip, draws the sides of the opening together, insuring protection to the cheeks, usually the parts chiefly involved. B and C pass over the top of the head and are sewed to D and E which pass over the ears, to the back of the head where they are united. The masks are best made of

muslin or thin old linen, and are to be renewed daily.

HIVES

The type of hives most frequently seen in children appears in the form of large wheals from one-half to one inch in diameter. There may be but two or three of these wheals, or a large portion of the body may be covered by them. They consist of a firm, flat, circumscribed, reddened eruption of the skin, without any definite arrangement. In addition to the skin, the mucous membrane of the tongue, mouth, and pharynx may be involved. In some instances the eruption appears very suddenly, lasts but a few hours, and quickly disappears. If the attack is of a severe nature new spots appear from time to time which behave in the same way. Hives in children are almost without exception due to digestive disorders. I have repeatedly known attacks to follow some unsuitable article of diet, such as cakes, strawberries, pastry, or nuts. Constipation may cause an attack.

The only symptom of consequence is the

distressing itching which is always present. Treatment consists in the use of laxatives and a temporarily restricted diet. The itching is best relieved by bathing the parts with a solution of carbolic acid—one teaspoonful to a pint of water.

MILK-CRUST

What is commonly known as milk-crust consists of the formation on the scalp of a thick layer of yellow sebaceous material. In addition to being unsightly it is very annoying to the patient on account of the itching which it causes. The mother usually assures us that the condition is not due to neglect. The head is washed and oiled very often; but washing will neither cure nor prevent the disease.

Milk-crust is due to an inflammation of the sebaceous glands of the skin. The affection is easily relieved. The hair must be cut very short, and an ointment, composed of resorcin, forty grains, and vaseline, two ounces, should be spread generously over the diseased area and covered with a piece of linen which has been saturated with the

ointment. Over this a fairly tight-fitting, home-made muslin cap should be worn to hold the dressing in place. The ointment should be applied twice daily. After three or four days of the treatment, during which time no water must touch the scalp, it may be gently cleansed with Castile soap and warm water, or with warm sweet oil.

The whole or the greater portion of the crusts may be removed with the first washing. Some severe cases may require two or three repetitions of the treatment. After the scalp is clean, an application of the ointment at bedtime once or twice a week will prevent a return of the trouble.

INTERTRIGO

Inflammation of the skin of the thighs and buttocks, by some mothers erroneously called sprue, is often seen in quite young children. In the majority of cases this condition is due solely to neglect of the toilet. The child is allowed to lie in soiled napkins, the irritant discharges thus remaining in contact with the delicate skin, and inflammation and excoriation of the parts

naturally follow. Children have delicate skins and often pass very acid urine. When this combination is present an inflammatory condition of the parts is frequently difficult to avoid. The management is simple, usually requiring only a changing of the napkin as soon as soiled and the generous use of zinc ointment. I have had very little success with dusting powders in such cases, especially in those of any degree of severity. After passage either from the bladder or bowels, the napkin should be immediately removed, the parts gently washed with Castile soap and boiled water, or, in bad cases, warm sterilized sweet oil may be used to better advantage. After the parts are clean, apply to the inflamed area pieces of clean old linen which have been covered with zinc ointment. If the ointment is applied directly to the skin the napkin soon absorbs it, and its application will be of no service. The ointment acts as a barrier between the irritating passages and the inflamed skin. Under this treatment I have repeatedly seen the worst cases of intertrigo recover in a week.

Of course the applications must be re-

peated after each cleansing and drying. The ointment must be used extravagantly. The dressing is then applied to the parts and is to be changed several times daily. Over this dressing the napkin is placed, and is to be changed several times daily. If the ointment is simply spread over the skin and the napkin applied, it will soon be absorbed by the napkin and be of no service. The urine, which is chiefly at fault, is prevented by the ointment dressings from coming in contact with the skin, the treatment being solely protective. At the same time a quantity of absorbent cotton is placed next to the genitals so as to absorb the urine as it is passed and thus prevent its general distribution over the parts. When the case is well advanced toward recovery, scrupulous cleanliness and a dusting-powder composed of equal parts of powdered starch and oxide of zinc will usually be all that is required.

PRICKLY HEAT

In prickly heat there is an acute engorgement of the vessels of the sweat-glands with obstruction to their outlet. Minute papules

form which are reddish in color. The mild cases are without inflammation. When inflammation develops, small vesicles also appear and may cover large areas of the body. Nearly every infant suffers from prickly heat in summer. It is most frequently seen on the head and neck and over the chest and shoulders. The patients are very uncomfortable and restless. There is evidently a great deal of burning and itching. The condition is caused by heat, due either to too much clothing or to the hot weather of summer; both causes may be operative. I have frequently seen it in winter in overclad children. Most babies are overclad at all seasons of the year. When prickly heat develops, regardless of the season, it is a sure sign that the child has been kept too warm. The duration is dependent upon climatic conditions and also upon the treatment. I have seen cases which have existed for months.

Heavy clothing and flannels are to be avoided. The clothing should be light in weight and of loose texture. In order to lessen the local irritation the garment worn next to the skin may be lined with silk, linen,

or gauze. The further means of management as regards both the relief afforded the patient and the cure of the condition, consists in the frequent application of cool water, in the form of either a tub-bath or sponging. The soda bath, the bran bath, and the starch bath (page 117) are all most useful. For purposes of sponging, a solution of bicarbonate of soda should be used—one tablespoonful to a gallon of water. The relief afforded the patient depends not so much upon what is used in the water as upon the fact that plenty of cool water comes in contact with the itching, burning skin. Ointments and salves are of little service here, as they tend to produce further maceration of the skin. As local applications, powders are preferred to lotions. A powder used with satisfaction in this condition is of the following composition:

℞ Boracic acid, 60 grains.
Powdered starch,)
Powdered oxide of zinc,) each 1 ounce.

This is to be dusted freely over the involved surface several times daily, every hour if necessary.

FISSURES OF THE ANUS

In children suffering from what are called *fissures of the anus* there will be found one or more slight tears in the mucous membrane just inside the anal aperture. In such cases there is always a history of an intestinal disorder, usually constipation, sometimes diarrhœa, the fissures having been caused either by a stretching of the parts by a hard, constipated movement, or by the frequent irritant passages which have caused a destruction of the mucous membrane of the parts.

An infant thus affected cries lustily when having a passage, and strains and presses for some time afterward. Very often the passage will be streaked with blood. Older children postpone going to stool as long as possible and complain greatly of pain when the bowels move.

These cases will be greatly relieved by the correction of the intestinal derangement. If the child is constipated, the movements should be kept soft by the use of suitable diet and laxatives. If there is diarrhœa, suitable diet and medical attention are

necessary. The local treatment, which may be necessary, should be carried out by a physician.

BOILS

Infants are particularly subject to boils, which are supposed by many to indicate some radical blood disorder. As a result, the victims are drugged and purged with all sorts of teas and "blood-purifiers." The cause of the boil is very rarely from within. It is usually the result of a local infection or inoculation into the skin, the germs finding entrance by means of a hair follicle or an abrasion so small as to be invisible to the naked eye. A boil having formed, the pus is carried to other portions of the skin by the lymphatics, or it escapes upon the surface, and, in either case, other portions of the skin are inoculated, and a series of boils results. The parts most often involved are the head, the neck, and the shoulders, although they may appear upon any portion of the body, with the exception of the palms of the hands and the soles of the feet. I have opened one hundred and four on one

child during a period of three weeks. While boils are more frequently met with among the debilitated and weakly, they are by no means uncommon in the strong and otherwise well. Poulticing, and allowing a boil to open spontaneously, is calculated to prolong the trouble indefinitely. A boil should be opened early, the pus evacuated, and the surrounding skin thoroughly washed with soap and water, when an antiseptic dressing composed of several thicknesses of old linen, which has been boiled and dried and then dipped into a saturated solution of boracic acid, answers every purpose. Not only the boil but the adjacent skin for several inches must be covered by the dressing, which is to be kept wet with the boracic acid solution.

BURNS

The temporary treatment of a burn of any degree aims at the exclusion of the air by the application to the injured parts of some non-irritating, oily substance, such as vaseline, zinc ointment, or sterilized sweet-oil. A piece of clean linen is saturated with

the ointment and placed upon the parts affected, and kept there until the arrival of the physician.

HEAD LICE—PEDICULI CAPITIS

Head lice, or *pediculi capitis*, are very frequently seen in out-patient and hospital work among children in all the larger cities. Occasionally other children become infected in school or in public conveyances who carry the vermin to other members of the family. The most successful and cleanly treatment consists in cutting the hair short; this done, wash the head with soap and water once a day, and after drying moisten the scalp thoroughly with the following solution twice daily:

Acetic acid.....	2 drachms.
Sulphuric ether.....	3 ounces.
Tincture of larkspur,	} of each 4 ounces.
Spirits vini rect.,	

Improvement will follow a few treatments. The pediculi will be killed and the nits may be removed with a fine-tooth comb. If the patient is a girl it is not absolutely

necessary to sacrifice the hair. It may be parted from various portions of the scalp and the solution applied without previous washing. However, if the hair is not cut, a much longer time will be required to effect a cure.

BITES OF INSECTS

Bites of insects in this country are rarely dangerous, although they sometimes cause great temporary disfigurement. It is quite difficult often to distinguish between insect bites and the eruption of hives. Mosquitoes poison some infants severely.

Insect bites are best treated by the use of a solution of carbolic acid,—one-half teaspoonful to a pint of water. This is applied by means of old linen which is kept saturated with the solution.

BITES OF ANIMALS

Bites of animals rarely amount to more than an incised wound from any other cause, and the treatment required is practically the same. When a child is bitten by a dog

or a cat the parents are greatly alarmed lest the child develop hydrophobia. If, however, they will remember that dogs bite thousands of people every year and no harm comes from it, if they will remember that a mad dog is of the rarest occurrence, they will waste much less good nerve force upon what is usually a trifling matter. In case of a bite of any animal, dissolve one teaspoonful of carbolic acid in one pint of water, and keep the parts moist with the solution, using only clean linen for its application to the wound. The physician, who should be called at once, will advise further treatment if needed.

FEVER

By fever we understand an elevation of the temperature of the body above the normal, which in an infant is 99° F. + by rectum. Fever, however, does not constitute disease. It is nothing more or less than a symptom, but it always means that something is wrong with the baby. It may be due to a slight attack of indigestion, the eruption of teeth, or to the beginning of

scarlet fever, diphtheria, or some other disease. Children develop fever much more readily than adults, and it is of less significance in them. A child with fever that is appreciable to the touch of the mother will usually register a temperature of 100.5° – 101.5° F. While such a temperature is by no means alarming, its cause should be discovered. In the absence of a clinical thermometer, in order to examine a baby for fever, place upon the abdomen the palm of a hand which has been previously warmed. Examination of a child's hands, head, and feet furnishes us very inexact means of judging as to the question of fever. Many times these parts will be cold when the thermometer registers a temperature of 104° or 105° F. Every young mother should possess, and know how to use, a clinical thermometer. In case of sudden high fever,— 104° to 105° F.,—from any cause, the mother cannot make a mistake in giving an alcohol and water sponge-bath at a temperature of 85° F. One part of alcohol may be added to 3 parts of water and the child sponged for twenty minutes. If necessary the sponging may be repeated every two or three

hours; this will keep the child comfortable until the arrival of the physician and perhaps prevent unpleasant complications. In case of fever the nourishment should always be reduced at once; if the child is on the bottle, reduce the strength of the food one-half by the addition of boiled water. If the child is nursed, reduce the duration of each nursing period one-third. Children with fever can always have plenty of cold boiled water to drink. Mothers must remember that it is not the fever *per se*, but the condition of the patient, which governs us in our treatment. In scarlet fever and pneumonia, a temperature of 102° to 104° F. is expected, and need cause no alarm.

MALARIA

Children in New York City and vicinity occasionally suffer from malarial fever. Fewer cases come under my observation now than formerly. The disease manifests itself in three different sets of symptoms. The mild form is most frequently seen, and will be the first considered.

The first signs of the illness are drowsi-

ness, languor, disinclination to play, and loss of appetite. In addition, such a child is apt to be peevish and fretful; he falls asleep at unusual times during the day. The sleep at night is often disturbed, and he generally sleeps later in the morning. There is a little fever,—so slight that it is not appreciable to the touch. These symptoms are followed by pallor and loss of weight. Such a condition may exist for several weeks without the development of more active symptoms of the disease.

In the more typical cases, the fever, languor, and drowsiness will appear at a definite time each day,—usually from three to five o'clock in the afternoon. The child wakes the following morning apparently well, but at about the same hour in the afternoon the symptoms are repeated. There is always a distinct periodicity in the symptoms. In some cases the child will be ill every second day, but at the same hour. In other cases the symptoms are still more characteristic and are easily recognized. At a certain time every day, or perhaps every second or third day, there will be a chill and a rapid rise in temperature, followed by a

profuse perspiration, during which the fever subsides.

I recently treated a little girl five years of age who had a chill every second day at eleven o'clock in the morning. The fever rose rapidly, until at one o'clock it was 106° ; at 3.30 the temperature was normal, and the child felt perfectly well. This continued for one week.

The diagnosis in the first class of cases is by no means easy. In many instances the nature of the illness is not discovered and the child is treated for various imaginary ills.

The usual treatment of malaria in children is by the use of quinine, or by a change of climate. The majority of the cases recover satisfactorily under quinine, but it should never be given without a physician's order. The indiscriminate giving of quinine whenever a child falls ill cannot be too strongly condemned.

TUBERCULOSIS

Tuberculosis is an infectious disease which carries off one-seventh of the population of

the earth. Children are very susceptible to the infection. The disease is caused by the entrance into the system of a micro-organism known as the *tubercle bacillus*. Tuberculosis is not inherited. The disease always comes from without, as does typhoid fever or diphtheria. We often see parents and children in turn sicken and die with this disease. This does not necessarily mean heredity, however. It means that there is a family condition of constitution which furnishes a favorable soil for the development of the bacillus. If all who swallowed or inhaled the tubercle bacillus became tubercular, the earth would be depopulated in a very few years. We have all taken the tubercle bacillus into our bodies at some time, probably many times. In one individual the germ finds a favorable soil and flourishes; in another, unfavorable conditions, - health and vigor of constitution, - and it dies. The usual means of infection is through the inspired air by the inhalation of the infected dust from the public conveyances, from the street, or from infected dwellings. Infection may also take place by direct contact through kissing. The

bacillus may be swallowed with food or drink which has been contaminated.

Almost every portion of the body may become the seat of the tubercular process. When the micro-organism attacks the lungs, it produces what is known as consumption, or pulmonary tuberculosis. When the covering of the brain is involved, the child has tubercular meningitis. When the hip-joint is attacked, hip-disease follows. When the spine is attacked, it produces what is known as Pott's disease. When the glands of the neck are infected, serofulous glands or tubercular adenitis is the outcome. Tubercular disease of the knee is commonly known as white swelling. These are the parts which are most frequently the seat of the tubercular process. With less frequency the bacillus attacks the bladder, the kidneys, the skin, the intestines, the mesenteric glands, and the peritoneum.

In institutions and among the poor, what is known as *general tuberculosis* causes the death of many infants. At autopsy they show an involvement of nearly all the internal organs. Tuberculosis in children is always a very serious disease, but it is not

necessarily fatal; many cases recover. When the disease involves the spine, hip-joint, or knee-joint, or the glands of the neck, the prognosis as regards life is usually good. When the brain is attacked, it is always fatal. In tubercular disease of the lungs in very young children the prognosis is very grave. Many older children—those from seven to eight years of age—recover if the disease has not progressed too far before coming under treatment. The important features in the management of these cases are: change to a dry climate at an elevation of one thousand to fifteen hundred feet, with close attention to hygiene and a carefully regulated diet in which there should be a generous allowance of meat, eggs, and milk.

RICKETS

Rickets is a constitutional disease due to malnutrition. A child with rickets either has not received suitable nourishment, or, if he has received it, it has not been assimilated. Lack of nourishment manifests itself in characteristic changes in the bones, muscles, and in the nervous system. In addition

to their physical characteristics, children with this disease may show delayed mental development. A rachitic child is usually under weight and undersized, particularly as regards length. The head is ill-shaped, the enlargement of certain bones of the skull giving the head a square appearance. The sutures and fontanelle close very late. I have seen the fontanelle still open at the fourth year. The teeth are cut late, are apt to be soft, and decay early. Many rachitic children do not get the first teeth until after the twelfth month is passed. The chest is narrow and depressed at the sides, and along its anterior portion, at the junction of the costal cartilages with the ribs, a row of nodules can be traced. The ends of the long bones, particularly at the wrists and ankles, are very much enlarged. In many cases this enlargement is so great that it produces quite a deformity. Often the legs are curved, a condition known as "bow-legs." The spine is weak and in severe cases the child is unable to sit erect. Spinal curvature is frequently seen in these children. The abdomen is usually very prominent. The malnutrition is further shown by the

flabby, poorly developed muscles, by the tendency to perspiration, particularly about the head, and by the unstable nervous system. These children are restless, irritable, and hard to please, and they have convulsions under slight provocation. Not all rachitic children are below weight; some are quite fat, but pale and flabby. The changes in the bones, however, are similar in both types. In addition to the characteristics noted, rachitic children possess feeble powers of resistance. They are prone to catarrhal affections of the respiratory and intestinal tracts. In many instances, they teeth late and with much difficulty. On account of their enfeebled condition and lack of resistance, illness in a rachitic child is apt to be tedious, if not serious.

The prevention of rickets depends upon proper feeding. Condensed milk and the proprietary meal foods are responsible for a large majority of the cases. Proper management requires suitable food, cleanliness, fresh air, and cod-liver oil. By "suitable food" is meant good milk for children under one year, to which meat and eggs are added as soon as they can be digested—usually

after the twelfth month. For very rachitic children I order also one brine bath daily.

SCURVY

Scurvy is a disease of quite frequent occurrence among bottle-fed children. It is characterized by pain in one or more of the joints of the long bones, with or without swelling of the involved parts and discolored, spongy, or bleeding gums. Hemorrhages into the skin sometimes occur, which give the child a peculiar mottled appearance. The disease is often mistaken for rheumatism because of the swollen and painful joints. If the case is a very severe one it may resemble paralysis in some of its aspects.

The disease is due to errors in nutrition. The great majority of the cases develop in those who are being fed on proprietary meal foods, condensed milk, and overcooked cows' milk.

Among the author's sixty-four cases, one symptom was always present: They all showed evidences of faulty nutrition; they also presented another symptom in common which was the earliest active manifestation of

the disease, and that was pain. The child that has been playful, active, and has enjoyed attention, suddenly undergoes a change—he prefers to rest in the crib or carriage, cries when handled, and refuses to play. Often the first signs of trouble will be noticed when changing the napkin or putting on the shoes or stockings. The movement of the diseased parts causes pain and the child cries lustily. If he is undressed and rests on his back, the affected limb in all probability will remain motionless, while its companion may be moved freely.

The symptom of pain appears before the swelling of the joints, which is sure to follow in case the disease is not recognized early and treated properly. Another characteristic symptom is the swollen, congested, and bleeding gums about the upper incisor teeth. This condition is sometimes seen early in the attack, but it is usually a later symptom. Hemorrhages into the skin are of comparatively infrequent occurrence.

Scurvy uncomplicated is not accompanied by fever. Acute articular rheumatism is always accompanied by fever. Rheumatism is rare in children under two years of

age; scurvy is rare in children over two years of age. There is no excuse for an error in diagnosis between the two affections.

The treatment is: fresh cows' milk, beef juice, and orange juice. For a child one year of age the juice of one orange should be given daily. Under proper treatment the average case will be well in a week or ten days, improvement being noticed in from twenty-four to forty-eight hours after beginning the treatment.

RHEUMATISM

Rheumatism is a disease of very grave import and of rather frequent occurrence among children after the third year. Under the second year it is of the rarest occurrence. At this age scurvy is frequently diagnosed as rheumatism. It may appear in all degrees of severity. The mild attacks are often so slight that a physician is not consulted and the diagnosis of rheumatism never made. Such cases are often mistaken for sprains and so-called "growing-pains." Aside from this mild type we have the disease in all degrees of severity. The severe artic-

ular form known as inflammatory rheumatism, is that in which the child, with high fever, reddened, swollen joints, dreads your approach to the bedside and begs you not to touch him. There can be no attack of rheumatism so mild that it should be ignored. Every child ill with this disease is in danger of heart complications which may make him an invalid for life. Probably four-fifths of the cases of valvular heart disease in adults are due to attacks of rheumatism during childhood, and in many instances the disease of the heart is not recognized until long after the rheumatic attack. In every case of rheumatism the heart should be examined and properly treated. Heart involvement is as liable to develop in the mild as in the severe attacks. In some cases it is the only evidence of the presence of rheumatism. Children of rheumatic parentages and those who show rheumatic tendencies should be given a very low sugar diet with red meat not over three times a week.

GRIPPE

Grippe is a disease very prevalent among

children during the colder months. It is due to a micro-organism which is usually taken into the system with the inspired air. There are four types of the disease to be seen in children.

In the most common type the respiratory passages are the parts chiefly involved. The symptoms resemble in some respects those of a common cold. There is running at the nose, cough, sore throat, and, generally, bronchitis. There is a higher fever, however, than can be explained by the catarrhal symptoms. greater muscular weakness, and greater prostration. If uncomplicated, the disease usually runs its course in from five to eight days. The complications to be especially dreaded are bronchitis, pneumonia, and otitis.

The next most frequent type of grippe is the muscular. There are fever, headache, loss of appetite, prostration, and great muscular weakness. There is little or no involvement of the respiratory tract.

The third type includes the cases in which the intestinal symptoms predominate. I saw about twenty of these cases during the winter of 1890-91. The children were

taken suddenly with fever, prostration, and diarrhœa which was very hard to control. There were from eight to sixteen green, watery passages daily, containing a moderate amount of mucus, streaked with blood. There were also slight cough and coryza, with considerable congestion of the throat.

In the fourth type the nervous system is chiefly affected. These patients have the fever and muscular soreness common to all varieties, with the prominent symptom—excessive irritability. In some cases there seems to be almost entire loss of self-control. The patients are peevish, fretful, depressed and hysterical by turn. They cannot bear the slightest noise, and sleep only when under the influence of drugs.

The severe cases, however, have two symptoms common to all—fever and intense prostration; prostration and weakness out of proportion to all objective symptoms are the peculiar characteristics of grippe. I have lost two patients, aged, respectively, three and four months, in both of which the system was completely overwhelmed by the virulence of the grippe poison. Both children died in less than twenty-four hours,

apparently from exhaustion. Post-mortem examination failed to detect in either case any organic change sufficient to cause death.

A very unpleasant feature of grippe is the wretched physical condition in which the patient is often left after the acute symptoms have disappeared. Weeks of the most careful treatment will frequently be required to restore his previous good health. There is no specific treatment for this disease. Every case must be treated according to the symptoms presented. For those which fail to make prompt recovery, a change of climate should be advised. Many of my patients have done surprisingly well at Lakewood, or at Atlantic City.

CONVULSIONS

A convulsion is a temporary loss of consciousness, associated with rhythmical contractions of various muscles of the body. Rachitic, delicate children, and those suffering from malnutrition in any form are predisposed to convulsions. Disturbances in the gastro-intestinal tract, due to errors in feeding, have been the cause in ninety-five

per cent. of my cases. Nearly all were seen among the badly bottle-fed or in those beyond the bottle age who had been given food unsuited to their years. I have frequently known seizures to follow an unusual indulgence in cake, pie, or fruit. Excessively high fever may be a cause of convulsions. Pneumonia, meningitis, and contagious diseases are sometimes ushered in by convulsions. Heat prostration and worms may be mentioned as infrequent causes. A patient of mine,—a boy three years old,—had repeated convulsions until he was relieved of forty-three large round worms. According to my observation, dentition is rarely an immediate cause. The dentition period covers eighteen months, and children often have convulsions during this time; a thorough examination of the patient, however, will usually reveal the seat of the trouble in the intestinal canal or stomach. Dentition may indirectly be a factor. A few years ago a mother insisted that I should lance the healthy gums of a girl eighteen months of age, who repeatedly had convulsions. This I refused to do, and ordered, instead, two teaspoonfuls of castor-

oil. The child passed one-quarter of a partially masticated orange and the convulsions ceased.

When a child is attacked, prompt action is necessary. The family physician should be sent for and the patient placed at once in a mustard bath at a temperature of 105° F.; an even tablespoonful of mustard should be added to five gallons of water. The patient should not be allowed to remain in the bath over ten minutes, when he should be removed and dried vigorously. If possible, the child's temperature should be taken while in the bath, and if above 102° F. (in convulsions it usually ranges between 104° and 106° F.) the temperature of the water should be lowered to 75° or 80° F. by the addition of ice or cold water. Watch the effect of the cooling of the bath upon the child's temperature, and when it is reduced to 101° F., remove him. The temperature in convulsions should always be noted. To my mind the high fever has oftentimes a great deal to do with the seizure. Not long since I was called to see a child in convulsions. Upon my arrival I learned that he had been put into a hot bath at 110° F., and kept there fifteen

minutes, but the child showed no signs of improvement. The temperature was taken while in the bath, and registered 111° F., as high as the thermometer would register. In this case the hot bath was the worst means of treatment that could be devised. There is no advantage in making the water hotter than 105° F. In the bath, or immediately upon removal, give an enema of soap and water so as to insure a movement of the bowels as soon as possible. As soon as the child can swallow, one or two teaspoonfuls of castor-oil should be given. If it is known that the child has taken something indigestible, a teaspoonful of syrup of ipecac should be given, and repeated in twenty minutes if vomiting does not follow. The convulsion is very apt to be repeated if the cause is not removed. The patient should not be held on the lap. He should be placed in his crib and kept very quiet. Cold cloths should be applied to the head and a hot-water bag to the feet. No solid food or milk should be given for twenty-four hours; broths and barley-water should constitute the diet. During the next few days there should be no excitement, and the physician's

orders regarding medication and diet should be carefully carried out.

COLIC

There are few children who reach the age of one year without having suffered from colic. Infants in the earliest months of life are particularly susceptible to such attacks. The majority of cases are seen in children under five months of age, although the seizures may continue until a much later period. During the attack the child cries violently, becomes red in the face, clinches its fists, draws up its legs, doubles up its body, and straightens out again. The abdomen is hard, often distended, and the hands and feet are cold. The child rests a few moments and cries again. Often all attempts at comforting him fail. An attack may continue from a few moments to an hour or more, perhaps until the child sleeps from exhaustion. I have had children brought to me for treatment who were so hoarse from crying that they could scarcely utter a sound. There may be several attacks a day after the feedings or they may not appear until evening.

Afternoon or evening colic is probably most frequent. These cases are easily explained. The overtaxed stomach has done its work fairly well early in the day, but as the improper, frequent feedings follow, it becomes tired and refuses to work "overtime." During the night some rest is obtained, but the following day the entire programme is repeated. So-called colicky children are often otherwise perfectly well. If the trouble is not particularly severe, they may be well-nourished and well-behaved babies when not in pain. In the severe cases there is apt to be evidence of marked malnutrition. It is often remarked that "a baby must do just so much crying," and nothing is done to relieve it. If one baby cries more than another it is because he suffers more. A baby rarely cries unless he is uncomfortable or in pain. He may cry while his clothing is being changed because it disturbs him; he will cry from cold, hunger, from the effects of a misdirected pin, or from pain of any nature, but never without any reason. The general tendency of the child is to play, to smile and be happy. When this is not the case something is wrong.

Colic in every instance means indigestion. It means that, whether breast-fed or bottle-fed, the food is not suitable,—is not adapted to the child's digestive powers, or not properly given. The child who suffers from habitual colic is usually constipated. It has been my experience that the chief error in the diet causing the colic was the excess of the proteid—the curd-forming element in the milk. It is thus practically useless to give carminatives and soothing syrups, and other remedies of a sedative nature, excepting for the immediate effects. Whatever error may exist in the feeding must be corrected. If the patient is a breast-baby we must treat the mother,—the source of the child's nourishment. Nursing mothers of colicky babies are usually of sedentary habits, hearty eaters, and constipated. Our first step must be to cure the constipation of the mother. She should have one full, free passage from the bowels daily. She should exercise in moderation in the open air: a walk of an hour or two in the morning, and an hour in the afternoon, will be most beneficial. Her diet should consist of fresh meat, poultry, fish, cereals, soups, baked potato, green vege-

tables, and stewed fruit. Coffee may be taken in moderation; milk, cocoa, chocolate, and water may be taken freely. A nursing mother should drink no tea. It is a popular idea that tea is a very necessary article for the nursing mother. Hardly a week passes but I hear from the out-patient mother of a sick breast-baby that she is drinking from one to two gallons of tea a day. The tea is kept "on the back of the stove," so as to be ready for use at any time. I have relieved many cases of colic in the child simply by curing the mother's constipation and regulating her diet.

Menstruation often causes temporary attacks of colic and other digestive disturbances in the child. Fright, anger, worry, or anything in the nature of a shock in the mother will often seriously affect the child's digestion. In short, when the nursing child suffers thus from digestive derangements, the error, nine times out of ten, rests with the mother. The trouble is rarely with the child.

As previously stated, habitual colic in the bottle-fed tells us that we are not giving the child a suitable food, or that we are

not giving a suitable food properly. The food as a whole may be too strong or too weak. It may be given too frequently. If cows' milk is the diet, the error is often due to improper modification. The proteid will usually be found in excess; not in excess, perhaps, for the average child, but in excess for the patient in question. There can be no set rules for feeding or definite formulæ for various ages that are infallible. The food of artificially fed children must be adapted to meet their individual requirements. The treatment of habitual colic in the bottle-fed consists in rendering the food suitable.

For the relief of immediate attacks, an injection of from six to eight ounces of water at 110° F., to which one-half teaspoonful of salt has been added, will often be of service. Five to eight drops of gin in a teaspoonful of warm water, by mouth, is sometimes useful. Two-drop doses of Hoffmann's Anodyne in two teaspoonfuls of hot water will frequently cut short a severe attack. Both the gin and the anodyne may be repeated in one-half hour if relief is not obtained. If the attack is prolonged, a hot-water bag should be

placed at the feet, and flannels wrung out of hot water applied to the abdomen. Oftentimes, in order that the digestive organs may have a complete rest, it is advisable to discontinue the regular food for a few hours, and give barley-water as a substitute.

CONSTIPATION

Among the derangements of the young, there are few which give more annoyance or are harder to manage successfully than constipation. The causes of the trouble are anatomical and dietetic. The comparatively long large intestine folded upon itself in the narrow pelvis offers an obstruction to the free passage of the intestinal contents. The lack of development of the muscular structure of the intestine is also a cause. Deficient nerve power, due to lack of development of the sympathetic nervous system, is thought by many to be an important factor. In all probability all these agents may be regarded as predisposing causes of constipation. The chief cause of constipation, however, according to my observation, is the proteid (the curd) in the child's milk. When the amount

of proteid is excessive,—a higher percentage than normal,—the child will be constipated. A child fed on a normal proteid with a low fat will also probably become constipated on a milk perfectly adapted, because of the difficulty of digesting cows'-milk proteid, or because the heating of the milk is carried too far.

Management in the breast-fed.—Among the breast-fed, the dietetic management of this disorder is difficult, for it is hard to change the character of the mother's milk. Much may be done, however. Inquiry into the daily life of the mother will usually disclose sedentary habits, a good appetite, a fondness for tea, and, probably, constipation. An examination of the milk of these mothers will show that the normal proportions of fat, proteid, and sugar are not maintained. The percentage of proteid is usually found to be higher than normal, with low or normal fat.

The first step in the treatment is the regulation of the habits of the mother. The bowels should be evacuated daily, with a laxative, if necessary. She should be placed on a diet of fresh meat, fresh vegetables, and

fruit. A malt liquor with luncheon or dinner is also sometimes recommended. She is instructed to take at least three hours' exercise daily in the open air. This régime will diminish the proteid and increase the fat in her milk, and not only relieve constipation in the child, but insure better nourishment and a later weaning than would otherwise be possible. The treatment of the mother is all that is necessary in a considerable number of cases, but when this fails, the child demands attention.

In treating the child my first step is to give cream; not cream purchased as such, but cream which rises upon the best milk obtainable. I give from one-half to two teaspoonfuls in quite warm water immediately before nursing. The use of the gluten suppository at the same hour for several consecutive days will do much to establish the habit of a passage at a regular hour each day.

In case the cream does not agree with the child or is ineffective, pure cod-liver oil—fifteen to thirty drops three or four times a day, or one teaspoonful of sweet oil two or three times a day—may prove beneficial.

When these measures fail, as they will in a small number of cases, further medication will be required.

Management in the bottle-fed.—The treatment of bottle-fed and “runabout” children is much easier and the results more satisfactory. It is, moreover, very simple, and resolves itself largely into a manipulation of the fat and the proteid. Given a bottle-fed child, six months of age, suffering from obstinate constipation, and the proteid should at once be cut down to a minimum by prescribing a cream, water, and sugar mixture. This should be given raw, if practicable. A 16-per-cent. cream is desired. Allow the milk which is delivered in bottles at about six o'clock in the morning to remain in the refrigerator until noon, when all the cream is removed. If the milk is good, the cream will contain approximately 16 per cent. of fat; if it deviates from this figure, the percentage will probably be lower. I use the pint (sixteen ounces) for a standard. If we mix one ounce of this 16-per-cent. cream with fifteen ounces of water, we will have a 1-per-cent. fat mixture. If two ounces of cream are mixed with fourteen ounces of

water, a 2-per-cent. fat mixture will result; if four ounces of cream with twelve ounces of water, we will have a 4-per-cent. fat mixture. But our 16-per-cent. cream contains more than fat. It contains also, approximately, 3.2 per cent. proteid and 3.2 per cent. sugar. If, then, we are to prepare a food for this six months' constipated baby, we need a high fat mixture,—four per cent.,—with a low proteid. In order to obtain it, we use four ounces of cream and twelve ounces of water. This, as will easily be seen, will furnish us a 4-per-cent. fat, 8-per-cent. proteid, and 8-tenths-per-cent. sugar. The fat is as high as we wish it, the proteid low where it ought to be, but the sugar is too low, and this we increase by the addition of milk sugar or cane sugar.

A word about the low proteid—.8 of one per cent. Compared with the mother's milk it is low, but we must remember that in our modifications we are not dealing with mothers' milk. In many cases it is unwise to attempt to give as high a proteid as that contained in mothers' milk, for the reason that it is more difficult of digestion, and, by reason of its higher nutritive properties,

it is not required. In case the reduction of the proteid is impracticable, or does not furnish relief, I add to each feeding of the cream or milk mixture one or two teaspoonfuls of Mellin's food or malted milk, which will often act as a satisfactory laxative. One feeding daily of malted milk, which replaces the customary feeding, is another means of relieving constipation in the bottle-fed. In older children,—eight to twelve months of age,—cream diluted with water is often given with oatmeal jelly,—one or two tablespoonfuls to each feeding. It is extremely rare for a case to resist this treatment, and when it happens I usually find the stool soft when voided, deficient peristalsis being, doubtless, the cause of constipation. In such cases medication is required. The sweet oil as advised for the breast-fed may also be used here.

Management in older children.—In “run-about” children the use of cream and water mixtures, rare meat, green vegetables, stewed fruit, zwieback, and bran biscuit renders the management of constipation exceedingly simple. The meals must be given at regular intervals, and crackers and white bread

excluded. Bran biscuit from Stanford's, 79th Street and Broadway, New York, and whole wheaten bread may be used with advantage. The more the milk is heated the greater its constipating effects.

It is our hope in treating constipation to relieve the patient by the dietetic measures above suggested. When these fail, we must resort to other means. Enemas and suppositories may be used occasionally, but the child should not become accustomed to them. In the severe cases which resist dietetic treatment, the outlook for an early recovery is not promising. In such cases the use of an enema of olive oil at bedtime has proven very satisfactory. A small amount of the oil, two to three ounces, is introduced through a large catheter, No. 18 American (male), which is inserted ten or twelve inches, the catheter being attached to a bulb syringe with a capacity of six ounces (see Fig. 18). An evacuation is not desired until the following morning, when the child is placed at stool after his breakfast and allowed to remain fifteen minutes. If no evacuation occurs at the end of this time, a slight stimulation in the use of a suppository or

soap-suds may be used to bring it about. In a comparatively few days usually the morning evacuation takes place without assistance. The oil should be continued

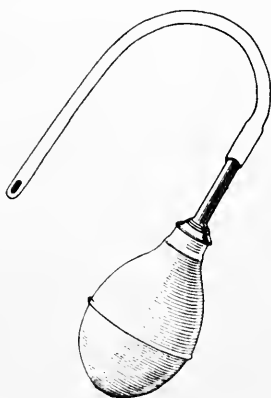


FIG. 15. THE BULB SYRINGE

for several days, when it may be omitted one night in seven. When an evacuation follows the next morning, it may be omitted one night in five. In this way the oil may be gradually lessened until it is no longer required. In some children a small amount of the oil will be passed during the night. These should wear a napkin.

VACCINATION

Every baby in fair health should be vaccinated not later than the third month—before any trouble incident to dentition may arise; for the younger the child, the less the constitutional disturbance. Vaccination in a child two to three months of age causes practically no illness whatever. Both sexes should be vaccinated on the outer side of the calf of the leg; girls, because the resulting scar on the arm may be regarded, in later life, as a disfigurement; and both boys and girls, because when the sore is on the leg it is more easily cared for. In dressing and undressing a child, the arm has to be manipulated to a considerable extent, thus causing more or less discomfort. The wound should be kept covered with a sterilized gauze bandage until the crust falls, leaving the dry pink skin underneath. Tub bathing should be discontinued until this takes place.

Vaccination shields are all worse than useless; they are often positively harmful, for they usually become displaced and may irritate and infect the sore. When unpleas-

ant results follow the vaccination, the virus is rarely at fault. The infection is usually due to carelessness or to uncleanness in the treatment of the wound.

Vaccination will always be considered by people who enjoy the possession of an ordinary amount of knowledge and a moderate amount of common-sense as one of the greatest discoveries of medical science. Since its discovery by Jenner, as statistics show, millions of lives have been saved by vaccination. It would seem strange that one should feel it necessary to speak in defence of a measure which has been of such incalculable value to the human race, but there are a noisy lot of mentally incompetent anti-vaccinationists, who are not without influence among their kind and the otherwise ignorant, upon whom the following statistics by Allen (*Pædiatrics*, February, 1900) would produce no effect.

In 1871, Germany lost one hundred and forty-three thousand lives by smallpox; in 1874, a law was enacted making vaccination obligatory during the first year of life and compelling its repetition during the tenth year. The result was that the disease almost entirely disappeared. At the present time

the loss of life from this disease throughout the empire is scarcely one hundred a year. At the time of the Franco-Prussian War, the entire German Army was re-vaccinated; while in the French Army, vaccination being optional, comparatively few were vaccinated. Both armies were attacked by smallpox, the French losing twenty-three thousand men, the German, two hundred and seventy-eight. With such statistics how can there be any plausibility in the argument of the anti-vaccinationists?

BED-WETTING

The urine is voided involuntarily by most children until well into the second year. If the child is carefully trained, the function of urination may be under perfect control during the waking hours by the end of the first year. We hear now and then of a child who urinates voluntarily at the age of six months. Such children are rare. The urine is passed normally during sleep until the child is two and one-half or three years of age. In many this will be controlled at the end of the second year, but I do not regard

the lack of control as an abnormality until the third year is reached. If the urine is passed involuntarily after the child is three years old, a physician should be consulted, not necessarily to give drugs, but to instruct the mother as to the diet and general hygiene.

Incontinence of urine may be due to a great variety of causes, among which may be mentioned a highly acid urine, stone in the bladder, which is of comparatively rare occurrence, adenoids, thread-worms, constipation, inflammation of the vulva and vagina in girls, and tightly adherent foreskin in boys. By far the greatest number of cases, however, are due to a lack of development of the nervous system and, in addition, a bad habit. Not infrequently the trouble is caused by too freely indulging in water and milk late in the afternoon and during the night. It is rarely a symptom of kidney or bladder disease. The relief of the inveterate bed-wetter of five or six years of age is often most difficult. The child must be examined by a physician to determine that there is no local cause for the trouble. If no such cause is found, well-directed medication, with the mother's co-operation, will

usually relieve the patient, although it may require months to do it. In the cases of only occasional bed-wetting, and with younger patients, the mother alone can often accomplish considerable. No water or milk should be given after four o'clock P.M. The child should have a dry supper, for which I would suggest farina, hominy, or rice, any of which may be served with butter and a little sugar. If the child will not take the cereals without milk, a very little may be added. This with stewed fruit and a piece of bread is sufficient. The child's bedclothing should be light, and he should be made to sleep on his side, not on his back. In order to prevent the child resting on his back, tie a piece of any thin goods about the body, with a large knot between the shoulders. The child should always be taken up at ten or eleven o'clock and made to urinate.

If there is phimosis, vaginitis, thread-worms, or any local disorders, treatment of the local conditions may effect a cure.

A few bed-wetting children are troubled with incontinence during the day as well. There is a constant leakage, the clothing being wet the greater part of the time. The

management of these cases, however, differs in no respect from that advised for those first mentioned, except in the matter of medication, which can only be carried out by a physician.

CARE OF THE GENITALS

PAINFUL MICTURITION, CIRCUMCISION

In girls very little care of the genitals is required other than cleanliness. The parts should be washed in boiled water and Castile soap once a day. Sponges should not be used. Soft old linen is far better, and after once using it should be burned. A sponge is never clean after it has once been used, and should have no place in the nursery outfit. A nurse should never begin the baby's bath until she has thoroughly cleansed her own hands with soap and hot water. After cleansing, the parts should be dusted thoroughly with the following powder: boracic acid ten grains, powdered starch and oxide of zinc each one-half ounce.

With boys more attention is required. The normal condition, a free foreskin, non-

adherent to the glans penis, is necessary for his comfort and health. It should be stripped back once a day and the parts washed very gently with Castile soap and warm water, dried with absorbent cotton, and a bit of vaseline applied. In the majority of boys the foreskin at birth is tightly adherent to the glans, with only a pin-hole opening. Such a condition is one of much annoyance to the child. Secretions which act as a foreign body form under the foreskin, producing no little irritation, drawing the child's attention to the parts, and thus often leading directly to the habit of masturbation. Inflammation of the foreskin and urethra not infrequently follows this condition. As a result, urination is painful and the urine is retained until the child cannot pass it. I have known children for this reason to hold their urine for over twenty-four hours. In two cases which came under my observation, pus formed under the foreskin, necessitating immediate operation. In two boys aged about two years, repeated convulsions occurred, for which no reason could be assigned other than the irritation caused by the tightly adherent foreskin and the

retained secretions. They were circumcised, and have been perfectly well during the two years which have intervened. Bed-wetting is often a direct outcome of this trouble.

Four out of five of the boys who come under my care need circumcision. This does not mean that four out of five are circumcised, as family objections are often hard to overcome, even where the physician is convinced that such a measure would be beneficial. In a very few cases, stretching and retracting the foreskin may answer every purpose. But such cases are rarely attended to properly afterward; no matter how careful the instructions given, the adhesions are allowed to re-form, and in a short time all the annoying symptoms return. When a child is properly circumcised he is relieved for all time.

RETENTION OF URINE

This condition often greatly alarms mothers. In girls, the most frequent cause is pain due to the inflammation of the urethral orifice and the adjoining parts, which

may have been caused either by excessive acidity of the urine, or by vaginitis. Retention sometimes results from taking cold; high fever is sometimes a cause, and, in some instances, no cause can be discovered.

In boys the retention may be due to urethral irritation produced by excessive acidity of the urine; far more frequently, however, the trouble is caused by an inflammation of the foreskin, which is often swollen to three or four times its normal size. In these cases the orifice of the urethra will usually be found red and swollen. In either sex, if there is retention of the urine for over sixteen hours, place the child in a tub of warm water at a temperature of 110° F., and often urination will follow immediately. Another useful method of treatment consists in the application to the parts of cloths wrung out of hot water. Perhaps the best results are obtained by the use of an enema of a normal salt solution,—a teaspoonful of salt to a pint of water,—at a temperature of 110° F.; at least a pint should be used for this purpose and the child allowed to retain it if he will. This treatment rarely fails. If it does, the doctor must use the catheter.

The swelling of the parts in boys is best reduced by a wet dressing of a saturated solution of boracic acid, which is applied on old linen wrapped around the parts and changed every half-hour. In girls a simple pad composed of several layers of old linen should be saturated with the boracic acid solution and similarly applied, the dressing being changed every hour, and the parts gently bathed with the solution.

NOSE-BLEED

Nose-bleed may result from a fall or blow, or from any direct injury to the nose. In most instances, however, it occurs independently of injury. Adenoids are frequently a cause of nose-bleed. Small ulcers often form on the nasal septum of delicate, poorly-nourished children, and give rise to most obstinate hemorrhage. Habitual and severe nose-bleed, particularly from one nostril, is usually due to this cause. Whatever may be the cause of the hemorrhage the immediate management must be the same. The child should sit erect and the nose be firmly compressed for twenty min-

utes between the thumb and finger. The tips of the thumb and finger should touch the lower portion of the nasal bones. The application of ice is also beneficial; a small piece of ice being wrapped in a handkerchief and held against the nostril from which the blood is flowing. After the hemorrhage has ceased, continue the application of ice-cloths for one-half hour and watch the child so as to prevent his blowing the nose. If the hemorrhage is severe, or if slight hemorrhages are repeated, a physician must be consulted.

WORMS

There are three varieties of worms commonly met with in children: the round-worm, the thread-worm, and the tape-worm.

Round-worms occur most frequently in children from two to ten years of age, although no age is exempt. When a child picks its nose, grinds its teeth at night, sleeps poorly, has a coated tongue, and an indifferent appetite, it is supposed by the older members of the family to have "worms."

These symptoms may indicate the round-worms, but they far more frequently indicate a too close acquaintance with gingerbread and jam and other cupboard, between-meal indulgences. Frequent attacks of colic, constipation, alternating with diarrhœa, and convulsions are, in my judgment, the most reliable symptoms of round-worms. The only positive means of diagnosis, however, is the discovery of the worm itself, or the presence of the eggs in the stools. The round-worm resembles the common earth-worm. It is usually from five to nine inches in length and inhabits the small intestine. Round-worms are seldom seen among city children; in the country, however, they occur with much greater frequency.

Thread-worms inhabit the lower portion of the large intestine, and in appearance are like pieces of white thread. They are usually from one-quarter to one-half inch in length. They are very frequently seen among the children of the tenements. Occasionally they occur in children of the better classes.

The chief symptom of these worms is an itching or irritation about the anus. The child is restless and sleeps poorly. In girls

there may be a vaginal discharge due to the irritation caused by the worms, which have migrated to these parts. Frequently the only symptoms of discomfort will be manifested when the child is put to bed. He will then complain of a biting, burning sensation in the rectum. In some, the rectal irritation is so great as to cause very pronounced nervous symptoms.

Some years ago I treated a six-year-old girl for involuntary movement of the arm and shoulders somewhat resembling St. Vitus's dance. The trouble disappeared after several weeks' treatment for the thread-worms which were present in large numbers. I have seen many cases of prolapse of the bowel due to the straining which was caused by the irritant action of the worms. In both sexes they may be a cause of bed-wetting and in girls are not an infrequent cause of masturbation. In some instances after treatment the worms will be passed in great numbers in the stools, and may sometimes be seen adhering to the skin of the parts.

Tapeworms in children are very rarely seen in this country. I have seen but eight cases among many thousands of children

treated during the past seventeen years. The presence of the tape-worm is indicated by various indefinite manifestations. Constipation alternating with diarrhœa are prominent symptoms. The child is often ravenously hungry. A positive diagnosis can be made only after the discharge of segments of the worm, which appear like short pieces of narrow white tape linked together.

The diagnosis and treatment of worms in the children of the household appear to be a jealously guarded function of the good grandmother. Young mothers, however, will do well to have the family physician usurp this prerogative.

CUTS, BRUISES, AND SPRAINS

Apparently every child must have his share of cuts and bruises. In case of a cut with considerable hemorrhage, pressure to the injured parts with cloths saturated with cold water will aid in checking the hemorrhage; later, a wet dressing of a saturated solution of boracic acid may be applied on clean muslin or clean old linen.

If there is a bruise with much swelling to be treated, the wet dressing with the boracic acid solution will relieve the condition. The dressing may be continued for two or three hours if required, the bandages being frequently saturated with the solution in order to keep them wet until the doctor arrives.

A sprain may be treated in a similar manner. The wet bandages should be bound around the injured joint, which, if a lower extremity is involved, is kept on a level with the body. Severe sprains, cuts, and bruises require medical attention at the earliest possible moment.

EXCITEMENT

A baby should not be subjected to excitement or its equivalent—too active entertainment. The nervous system of an infant is in such an undeveloped state that what would be a decided tax upon it cannot be appreciated by adults, who are often apparently insensible of the fact that children are different from themselves.

The first child in a well-to-do family is usually the greatest sufferer from superfluous

attention,—being a source of unending admiration on the part of the family and friends. He is often present very early in life at all important functions. Christmas, Thanksgiving, birthday celebrations, and afternoon teas find him the centre of attraction. He is handed from one guest to another and is tossed upon various angular knees. He is kissed by lips which dare touch only those who cannot protect themselves. He is talked to with a very loud voice in a very silly manner and grimaces horrible to witness are made at him. I have witnessed such scenes, and have treated exhausted infants who required medical attention after the *séance* was over. I have, indeed, seen infants thus brought to the verge of collapse. One child of eleven months had convulsions which were indirectly due to fatigue incident to a Thanksgiving celebration.

KISSING

Such a topic is not to be considered out of place in a work of this nature; in taking up the child's management in all its details, it is my belief that a few remarks on this

subject are perfectly in order. Every detail of the child's daily life should be under the oversight of the physician, and if he is to do his full duty, he must give a certain amount of voluntary, unsought advice. A custom concerning which he will not be consulted is the matter of that most unhygienic practice of kissing.

A child should never be kissed on the mouth, and this is a standing order with all my patients. I have known, in my own private practice, of instances where tuberculosis, diphtheria, and syphilis have been communicated from the diseased adult to the innocent child by this disgusting practice. Neither should the child's hands or fingers be kissed, as the hands and fingers of the majority of babies are in their mouths many times an hour. If baby is the first one that has graced the household, and *must* be kissed, this can be accomplished with the least damage if the kiss is implanted on the head or forehead. The parents must make the rule, and they must set the example by adhering to it themselves.

Among my patients, a nurse who is known to have kissed the child is punished by dis-

missal. Because an adult is apparently well is no excuse for this indulgence. Healthy adults frequently have in their mouths the germs of tuberculosis, of diphtheria, and of other diseases, and never suffer from their presence because they are strong adults with vigorous mucous membranes which do not furnish as favorable a soil for the growth and development of pathogenic bacteria as do the more delicate mucous membranes of the young. It is criminal, therefore, to subject the child to such dangers. Scarlet fever, measles, and whooping-cough are all most readily transmitted at the beginning of an attack through the close contact required by a kiss.

Kissing should not be allowed among children. Little girls are very prone to follow the customs of their mothers, whether good or bad; hence, the necessity of advice in this direction will be impressed upon the parents if they will observe the interchange of bacteria which takes place on the sailing or arrival of any of our large ocean steamers!

SLEEP

The infant that sleeps well is almost always

a normal, well-fed baby. Irritability and sleeplessness are associated with indigestion more frequently than with any other disorder. During the first few days of life the sleep, in normal conditions, is almost unbroken, except when the infant is fed. During the first month the infant sleeps about twenty-two hours out of every twenty-four; during the second and third months, from twenty to twenty-two hours. At the sixth month the child should sleep from 6 P.M. to 6 A.M. without interruption other than for feeding or nursing, which need cause very little disturbance. At this age there should be a two-hour nap during the morning and a two-hour nap in the afternoon, although it is not well to have the baby sleep after three o'clock in the afternoon. The twelve-hour night rest should be continued until the child is six years of age. The day naps will gradually be shortened by the child. At one year of age, one hour in the morning and two hours in the afternoon suffice. From the eighteenth month to the second year, the morning nap is given up. Afternoon rest for at least one and one-half hours should be continued until the child is six years of

age, and longer if he is inclined to be delicate. Regular sleep is largely a matter of habit, and if the infant is started right, with suitable feedings given at definite times, followed by the proper period of sleep, but little trouble will be experienced with sleeplessness. When sleep is disturbed and broken, it means bad habits, unsuitable food, minor forms of indigestion, or positive illness of some kind. Sleep is important for purposes of growth not only in early infancy but throughout childhood. Not a few infants form habits of sleeping in the daytime and being wakeful at night. This is best remedied by keeping the baby awake when he should be, during the day, by entertainment and by keeping him in a well-lighted room. I am sure that the satisfactory results I have had the good fortune to achieve in the treatment of secondary malnutrition and anemia have been due in part to my insistence that the child sleep in a quiet, darkened room for two hours after the noonday meal. The energy expended in twelve hours by an active child is incalculable, and when a portion of this energy is reserved and the body fortified by rest and sleep during the middle of the

day, it means a greatly diminished daily expenditure of strength units.

CRYING

It is well for the young infant to cry a little every day. Muscular movements involving a greater part of the body accompany the act of crying and furnish exercise. Peristalsis is increased, as is often evidenced by a movement of the bowels occurring at the time, particularly when there is diarrhœa. In crying, deep breathing is necessary, the lungs are expanded, and the blood oxygenated. The well baby cries when frightened, or uncomfortable from hunger, soiled napkins, or inflamed buttocks. He cries from pain, from heat, from cold, from unsuitable clothing, and during difficult evacuation of the bowels. He also cries when displeased or angry. Authors are prone to refer to the diagnostic value of an infant's cry. It is my belief that characteristic cries are not to be depended upon sufficiently to give them a differential diagnostic dignity. Children slightly but painfully ill may cry incessantly for an hour or two. Thus, with

intestinal colic, where the cry is loud and continuous until the child is relieved or until he falls asleep from exhaustion. Earache is not an infrequent cause. The habitual criers, the restless and vigorous crying, whining infants, are uncomfortable. With very few exceptions the trouble will be found in the intestinal tract. The well-trained, normal child, whose nourishment is suitable, is seldom troublesome. When well, all babies are naturally good-natured and happy in their own way. Badly managed, spoiled infants often cry vigorously when left alone. When attention is given them, when they are taken up and talked to, the crying ceases. This readily tells us that pain or discomfort was not an element in causing the cry. In these infants, discipline, not medication, is needed. The management of the habitual crier involves the relief of the condition which causes the discomfort, or the most rigid discipline.

CLEANLINESS

Much has been said and written regarding the necessity of cleanliness so far as the child

is concerned; but not only should the nurse and mother see that the baby is clean; they must be clean themselves. Immediately after every attention to the napkin the hands should be washed with hot water and soap and a stiff brush. This cleansing process must be repeated before the preparation of the food or any manipulation of the feeding apparatus.

The child's attendants should not have decayed or neglected teeth. The tooth-brush should be an important article in the outfit of every nurse. She should take a tub-bath or sponge-bath daily. The hands and finger-nails of many nursery-maids will bear watching.

COLD HANDS AND FEET

The hands and feet of the infant should never be cold to the touch. This is a cause of much of his discomfort and restlessness. A very young child with poor circulation will be made much more comfortable by placing a hot-water bag at his feet. Bottles filled with warm water and wrapped in flannel will keep the upper extremities warm.

In using the hot-water bags and bottles be sure that the water is not too hot. Severe burning accidents have resulted from carelessness in this particular.

An excellent means of keeping premature or delicate babies warm is in the use of the "Electrotherm" (Fig. 12). These small heaters are attached to an electric fixture, like a drop-light. A convenient size is from ten to fifteen inches. It is placed between two or three thicknesses of blankets, upon which the infant lies in its basket or crib. The degree of heat can be regulated according to the amount of electricity turned on.

FOREIGN BODIES SWALLOWED

The child's stomach is a frequent receptacle for objects for which it was never intended. Pins, buttons, safety-pins, small pieces of chalk, pencils, etc., often find their way into the stomach of the "runabout" child. I knew one child to swallow an open safety-pin, and another to swallow a stick-pin, the head of which was a small four-leafed clover. Both children passed the pins without the least harm resulting. In order that

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the object swallowed may not injure the child, give starchy substances in large amount: oatmeal, potatoes, corn-meal mush, —substances which in the intestines form a semi-solid mass in which the object swallowed may become imbedded and carried forward. These cases should never be given castor-oil or any other laxative.

FOREIGN BODIES IN THE EAR AND NOSE

This subject is brought to the attention of mothers to warn them against any attempt at the removal of foreign bodies from the nose or ears of one of their children. The means often thus employed, such as hair-pins, button-hooks, etc., should never be used, as they are liable to do much harm. I have often removed shoe-buttons, peas, beans, pieces of coal, and pebbles from the nose, and have had trouble only with those cases in which some member of the family had attempted the removal with the result of forcing the foreign body farther into the cavity. When the foreign body is in the nose, the child, if old enough, can sometimes

remove the obstacle by pressing upon the unobstructed nostril while he vigorously blows the nose. When this does not succeed the child should be taken to a physician.

DANGERS FROM FLIES AND MOSQUITOES

The windows of the nursery should be screened so that flies and mosquitoes cannot enter. When out of doors the very young child should be protected by mosquito-netting. Mosquitoes severely poison many children, and are of especial danger in that one variety is capable of inoculating the child with malaria, the *plasmodium malaricæ* being deposited along with the other poison.

Flies, in addition to disturbing sleep, are a source of much danger which is but little appreciated. The fly enters the nursery and alights on the nipple of the nursing-bottle. This may take place while the child is resting for a second or two during his meal, as flies are very fond of the sweet milk which may adhere to the nipple; or the fly may alight upon the child's bread, or the prepared cereal,

or any article of food, particularly if there is a sweet element in it. The last place the fly rested before reaching the nursery we never know. It may have been on animal excrement, or tubercular sputum, or the infectious discharges of a typhoid-fever patient. In this way the flies' feet and legs are the means of transporting the germs of typhoid fever or diphtheria. Tuberculosis is unquestionably transferred in this way very frequently, minor ailments with still greater frequency. Flies are a source of danger in the house, and should be driven out or destroyed.

WHEN TO SEND FOR THE DOCTOR

This question is easily answered. Send for the doctor when there are any indications of illness in the child which the mother does not understand. It is better to be overcautious in this respect than to join the great number of mothers who are never free from the bitter, life-long regret, "The child might have been saved had he been treated in time." I know such mothers.

There are two conditions in which the

mother must not trust herself for a moment. These are summer diarrhœa and sore throat. "Only a summer diarrhœa," and "only a sore throat," and "only a teething diarrhœa," have sacrificed the lives of hundreds of infants.

Diphtheria is a very prevalent disease, and the successful treatment of it requires that the child be seen by the physician at the earliest possible moment. So, also, with summer diarrhœa. I have seen infants die in twelve hours with the disease. Calling a doctor early is a means not only of safety, but of economy. In the correction of slight ailments, grave ones are avoided.

PATENT MEDICINES

Patent medicines should form no part of the nursery outfit. The mother's home remedies should all be approved by a physician. Cough mixtures and soothing syrups, the advantages of which are so faithfully portrayed in the popular magazines and religious periodicals, are often very harmful. Most of them contain alcohol, opium, or morphine. Time and again I have seen

children drugged to the point of stupor by these remedies.

SUMMER RESORTS

Where to take the child for the summer is a vexed question which arises once a year in many households. Several years of observation of a great many children who have spent the summer out of town have led me to the following conclusions:

1. The most desirable summer outing: the first half of the season at the seashore, the remainder inland, preferably in the mountains.

2. The next in order of desirability: inland, preferably the mountains for the entire summer.

3. The least desirable: the seashore for the entire summer.

I do not wish it understood that many children will not do well at the seashore if kept there the entire summer; some, indeed, improve wonderfully; but among my own patients I have been repeatedly impressed with the disadvantages of a prolonged outing by the sea. The seashore children, as a rule,

do not return to the city in the fall with the vigor, appetite, and general robustness which characterize those who return from the mountains. I refer only to New York children, whose home is a seaport, and who thrive best when given the advantage of a complete change to the dry, invigorating air of the mountains. Children with catarrhal tendencies, adenoids, bronchitis, and rheumatism, and those convalescent from pneumonia, should not go to the seashore.

In selecting an inland resort, the mountains, by which we understand an elevation of from fifteen hundred to two thousand feet, are not always necessary. The place selected, however, should have an elevation of at least six hundred feet, and should not be within sixty miles of the coast. Children who are subject to rheumatism and bronchitis do best on a sandy soil, in a dry climate, with the sleeping rooms above the ground floor.

Another point to be considered in this connection is the kitchen facilities which will be provided for the preparation of the child's food. As a rule, the larger hotels refuse the right of way to the kitchen; or,

if they do not, it is at the expense of many material attentions to the *chef*. I find that mothers are given much more latitude as to these matters in the smaller hotels and boarding-houses. The proper preparation of a child's food in the cramped quarters of the sleeping apartment is not impossible, but it is very difficult.

Before selecting a summer home, the drainage, the milk, and the water supply must be considered. If the parents possess the means, a cottage should be rented, which will insure them all the comforts of home. Country well water or spring water should always be boiled before using.

DRUG-GIVING

Drugs are of service only in the hands of those who are trained in their use. Mothers often acquire the habit of treating their children. Self-prescribing is greatly overdone in this country among all classes. Many people know just enough about medicines to be dangerous members of society. The proprietary cough mixtures, soothing syrups, teething carbohydrates, etc., are often injurious.

They usually contain opium,—a drug which a mother should never think of giving her baby on her own responsibility. It is not at all uncommon in hospital work to have children admitted in an opium stupor which resists all treatment for hours.

While the habit of promiscuous drug-giving is to be condemned, the mother is not supposed to remain inactive while awaiting the arrival of the physician; a preliminary dose of castor-oil in diarrhœa, or syrup of ipecac in croup, or rhubarb and soda when there is a furred tongue in indigestion, will always be in order. The mother may have her home remedies, but the physician must instruct her in their use.

THE DAILY OUTING

The baby should not go out in stormy weather. If under one year of age he should not go out if the temperature is below 20° F. During the midday heat of summer the baby is better off in the largest and coolest room in the house or on a shady veranda. On very windy days the outing should be postponed. When the snow is

melting in large quantities the baby is better off indoors.

INDOOR AIRING

For this purpose the child is dressed as for the daily outing. All the windows of the nursery or some other large room are opened, on one side of the room only. The doors should be closed, so that currents of air are avoided. The child is placed in his carriage, suitably covered, and wheeled about the room for an hour or two. This, if done twice daily, answers almost as well as the actual outing.

This method will be found very useful in "winter babies"—those born during the late fall or winter months. The indoor airing may be given for a week or more, before he is taken out. By this means the child is gradually accustomed to a change of the temperature from that of the average living-room to that of out-of-doors, and will not be harmed when he is finally taken out. After an illness, it will afford an earlier means of returning to the daily outing. This method of giving a child fresh air will be

found useful with very delicate children, who, by reason of their condition, may be unable to go out during the winter months for several weeks at a time. There are, however, but few days during the winter that are too cold or too stormy for the indoor airing.

CHILDREN'S PARTIES

Parties for children under the sixth year of age are to be discouraged. The important features of a child's party are entertainment and the "banquet." There are two features of child life that are important to guard against—excitement and injudicious feeding. Exciting play and unusual articles of food at an unusual time appear to be a necessary part of a so-called children's party. The bringing together of children of tender age is further to be discouraged because it increases their liability to contract the contagious diseases from which every child should be protected to the full extent of our ability.

Not long since a patient,—a little boy four years old,—invited fourteen little boys and

girls of corresponding ages to celebrate his birthday. The little host was more generous than was his wont; he gave more than the banquet! The night of the birthday party he was very uncomfortable. The following day he developed chicken-pox. In due course of time twelve of the fourteen little guests came down with chicken-pox. They were fortunate that it was only chicken-pox; it might have been scarlet fever or diphtheria.

I regret that I have not kept a record of the acute illnesses that have followed children's parties under my immediate observation. Acute indigestion, diarrhoea, convulsions, and all of the contagious diseases of childhood would be found in generous numbers in such a record.

BASKETS FOR EARLY EXERCISE

It is a great mistake to have the infant constantly in arms. The first baby suffers more in this respect than later children. When the child is held, there is always a tendency to make him sit on the arm or knee without proper support, or to toss about or handle him regardless of consequences. The

bones and ligaments of the spinal column are not sufficiently developed to bear the weight of the heavy head and trunk, and,



FIG 19. BASKET FOR EARLY EXERCISE

as a result, as the child grows older, spinal curvature and other deformities not infrequently follow. By urging him to stand on the lap the legs are used more than is advisable, and we find bow-legs or knock-knees very prevalent.

A large clothes-basket, in which a thick blanket has been placed (see Fig. 19) furnishes a safe and satisfactory playground. For the first few months the child will rest on his back and amuse himself in his own peculiar way. When he can sit up, supported by a pillow at his back, the basket gives him

plenty of room for toys and other baby requirements. In it the baby is practically safe. He is not apt to be injured by young members of the family in rough play. He cannot crawl to the stove to be burned, and is in no danger of rolling down-stairs. When he can stand and begins to walk, the basket period is at an end.

NIGHT TERRORS

The child awakens suddenly from sleep, cries out with fear, and begs to be protected from men and animals, which he imagines are trying to injure him. In some cases the nurse and immediate relatives of the family will not be recognized. The seizures may occur quite regularly every night until the cause is removed. Other children may have but one or two attacks in a week. The seizures are usually due to a disordered digestive tract in a nervous child. Adenoids and enlarged tonsils are considered by some to act as a predisposing cause. Anxiety regarding school duties, or overwork at school may help to bring on an attack; worms may also be a cause. My cases have all been due either to acute or chronic digestive disturb-

ances in nervous children. A boy patient twelve years of age has had two attacks every year, with one exception, since he was six years old. These attacks always occur on the nights after Christmas and his birthday, after indulgence in all sorts of unsuitable articles of food.

During the attack the child must be treated with gentleness; scolding makes matters worse. If possible, he should be induced to go to sleep; oftentimes a change to the bed of the nurse or mother for the remainder of the night will be all that is necessary; or a light may be left burning in the room. The attacks may usually be prevented by a suitable diet. The evening meal should be very light—a cereal with milk and a little stewed fruit is sufficient. This light supper has relieved several of my patients of habitual night terrors. Constipation is often an important factor, and when present requires treatment before relief is to be expected.

SCALES FOR WEIGHING

A scale for weighing the baby is a very necessary adjunct to the nursery furnishings.

There are, on the market, several varieties of scales for weighing the baby, which are unknown as "baby scales." The usual construction is that of a basket, into which the baby is placed, supported by a rod which rests upon a spring. A needle indicates on a dial the weight of the child. The use of

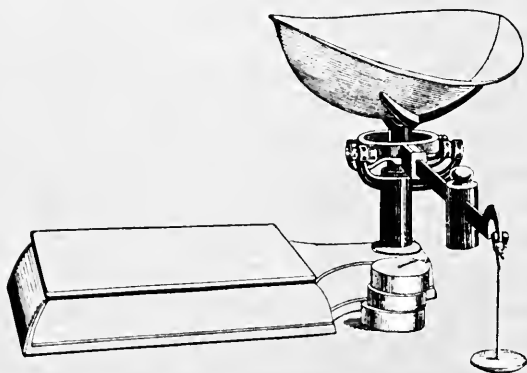


FIG. 20. SCOOP AND PLATFORM SCALES FOR WEIGHING

these scales is not to be advised. They get out of order easily, are expensive, and with a vigorous, kicking, crying baby, the rapid oscillations of the needle often prevent the weight being read with any degree of accuracy. Further, their weight capacity is but

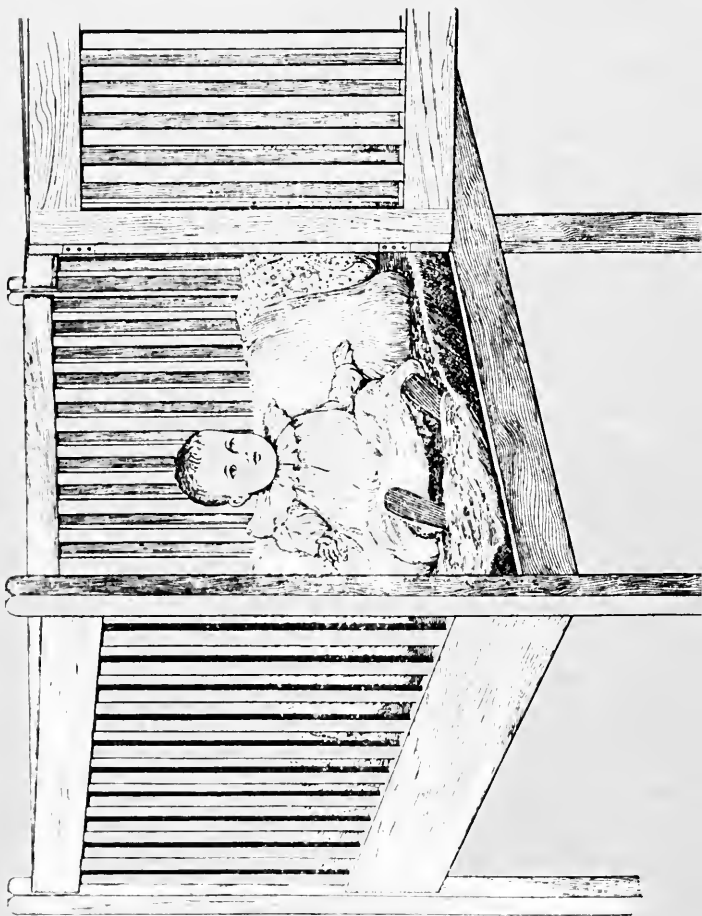
twenty pounds. When the child's weight reaches this figure, it necessitates the purchase of other scales. The scoop and platform scales used by grocers (see Fig. 20) answer the purpose far better than any others. They can be bought for about \$3.50,¹ do not get out of order, and weigh correctly from one-half ounce to two hundred and eighty pounds. The infant rests on his back in the scoop during the weighing process. Older children stand on the platform.

THE EXERCISE PEN

In a previous chapter, in speaking of cold and how children were exposed to influences which might bring about what is known as a "cold," the custom of allowing a child to sit on the floor is referred to.

To keep a child from eight to twenty-four months of age off the floor during the winter months, and thereby prevent his taking cold, is a very difficult matter. In fact, with active children who are learning to walk,

¹ Metropolitan Hardware Co., Church and Vesey Sts., N. Y. C.



or who have just learned to walk, it is practically impossible. During this season of the year there is always a current of cold air near the floor, and allowing the child to creep on the floor in winter, even if it is protected by rug and pillows, is one of the surest ways of taking cold. If he is allowed to walk on the floor he is very sure to sit in a very few minutes. If he is not allowed to creep and walk about at will he will not get the proper exercise, and will show faulty development; for such cases I have found the exercise pen (see Fig. 21) of immense service. After being dressed, washed, and fed, the infant is placed in the pen on a rug or quilt, toys are given him, and the door closed. He can now roam about at will, stand up, sit down, roll, creep, or walk without danger of physical harm from rolling down-stairs, being burned, or being stepped on. He is thus given an opportunity for active exercise without a possible chance of injury.

A young mother of two children will take her "pen" into the country in the summer and place it in the shade for use while the dew is on the grass. In case the nursery is small it can be made so as to fit over the

nurse's bed and consequently does not require any additional space. In a large nursery it can be placed permanently in one corner of the room, thus avoiding the trouble of putting it up and taking it down.

The pen can be made of any size,—4 x 6 ft. is probably the most convenient, although several made 4 x 4 ft. are in use. It is so constructed as to be taken apart and put together in a few moments, iron tenon hooks and iron mortices being used to hold the parts together. The floor may be made of any thin material. One-quarter inch pine boards nailed together so that the floor will be composed of two thicknesses, or papier-mâché supported by narrow strips of board, may be used. The floor is supported by strips of board about one-half by two inches, which are fastened to the inner side of the end-pieces.

FOOD FORMULAS

Beef-juce.—Take a round steak, cut into pieces the size of a horse-chestnut, place in a buttered pan in a hot oven, and bake for fifteen minutes; remove from the pan and

press out the blood with a lemon-squeezer or meat-press. Or, broil round steak very rare, cut into small pieces, place in a lemon-squeezer or meat-press, and press out the blood; add a little salt.

Beef, mutton, and chicken broth.—Take one pound of meat free from fat, cook for three hours in one quart of water, adding water from time to time, so that when the cooking is completed there will be one pint of broth. When the broth is cool, remove the fat, strain and add salt.

Scraped beef.—Broil round steak slightly over a brisk fire. Split the steak and scrape out pulp, using a dull knife.

Egg-water.—The white of one egg, thoroughly beaten in one pint of cold boiled water, strain, add a pinch of salt.

Oatmeal jelly.—Oatmeal, four ounces; water, one pint; boil for three hours in a double boiler, water being added, so that when the cooking is completed a thin paste will be formed. This while hot is forced through a colander to remove the coarser particles. When cold, a semi-solid mass will be formed.

Wheat jelly and barley jelly.—Wheat jelly

and barley jelly are made in the same way as oatmeal jelly, using cracked wheat or barley grains.

Barley-water.—Robinson's barley flour or Cereo Co.'s barley flour, one rounded tablespoonful; water, one pint; boil thirty minutes, strain, add water to make one pint.

Rice-water.—Rice, one tablespoonful; water, one pint; boil three hours, adding water from time to time, so that there is one pint of rice-water at the end of three hours.

Dextrinized barley-water.—Robinson's barley flour or Cereo barley flour, three tablespoonfuls; water, one pint; boil twenty minutes, add water to make a pint. When lukewarm (100° F.) add one teaspoonful of Cereo, strain; this changes the starch into dextrinized maltose.

Oatmeal-water.—Oatmeal, one tablespoonful; water, one pint; cook three hours and add water to make one pint.

Imperial granum-water.—Imperial granum, one tablespoonful; water, one pint; cook thirty minutes and add water to make one pint.

Whey.—Put one pint of fresh milk into a

saucepan and heat it lukewarm, not over 100° F.; then add two (2) teaspoonfuls of Fairchild's essence of pepsin and stir just enough to mix. Let it stand until firmly jellied, then beat with a fork until it is finely divided, strain, and the whey, the liquid part, is ready for use.

Junket.—To one pint of fresh milk add one tablespoonful of essence of pepsin or a junket tablet, and two teaspoonfuls of sugar. Allow it to stand over a fire until the temperature is 100° F.; then add vanilla as a flavoring and allow it to stand until the curd is set, when it should be placed upon ice.

THE END

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