

REBUILDING THE CHILD

A STUDY IN
MALNUTRITION



FRANK HOWARD RICHARDSON

By FRANK HOWARD RICHARDSON, A.B., M.D., F.A.C.P.

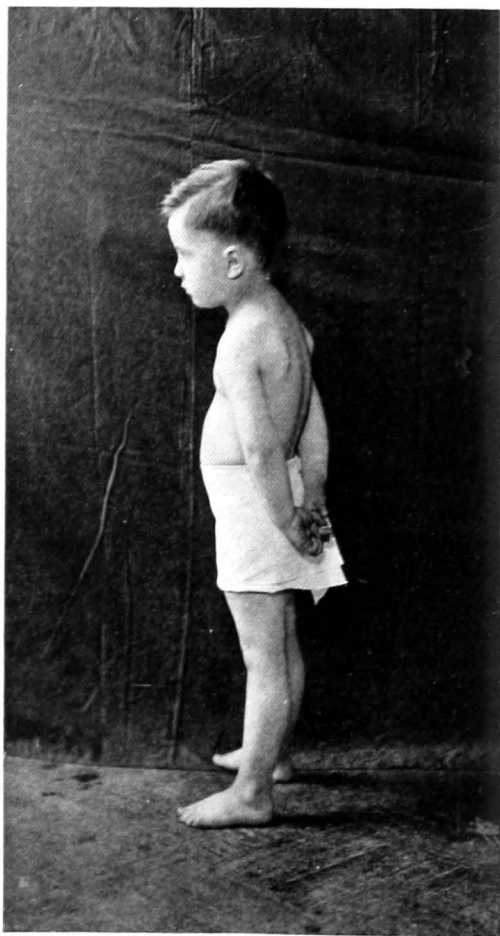
SIMPLIFYING MOTHERHOOD

PARENTHOOD AND THE NEWER PSYCHOLOGY

THE NERVOUS CHILD

REBUILDING THE CHILD: A STUDY IN MALNUTRITION

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By

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the Newer Psychology," "The Nervous Child," etc.

WITH AN INTRODUCTION BY

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Frank Howard Richardson



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To
CORNELIA MORSE RAYMOND
OF
VASSAR COLLEGE

Builder and Rebuilder of Lives
who, as "Aunt Nellie," told stories which to
us outdid the Iliad and the Odyssey;
who has touched no life without influencing it,
and has influenced no life but for good;

THIS BOOK IS DEDICATED
by one whose life bears constant testimony
to her love

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child, is now available. Emerson in Boston, Charles Hendee Smith in New York, and the writer of this book in Brooklyn and the South, have for several years past been writing and teaching a suitable technique to doctors, nurses, teachers and parents, with a constantly enlarging degree of success.

The nurse bears a very heavy proportion of the load, in the care of these children. Especially is this the case when they are gathered together in nutrition classes. Because of the nurse's responsibility and because the technique described is applicable to the handling of many other phases of children's work, the presentation of this book in the form of a series of articles appearing in *The Trained Nurse and Hospital Review* was especially appropriate.—EDITOR.

PREFACE

THE welfare of any child may very fairly be considered to be the resultant of four forces or influences which are constantly being brought to bear upon him. These four forces are: the parent, the teacher, the doctor, and the trained nurse. This is but a shorter way of expressing the problem, allowing each of these factors to stand for a whole constellation of influences. The parent represents the myriad environmental agencies of the home, together with whatsoever there may be of heredity; the teacher stands for the new and amazing transforming processes that are initiated when the youngster first takes his books under his arm and starts out from home to begin his education; the doctor, the illnesses and the remedies for them with which he will doubtless be plagued for years to come; and the nurse, the health agencies with which he will come in contact in home, school, commun-

ity, church, wherever he mingles with his fellow mortals as he lives his life and does his work. The fact that every one of these agents approaches his orbit with the best intentions in the world is of course very encouraging, and altogether as it should be. But this does not obviate the difficulties in the path of the child. For unless every one of these agents is a super-man or woman, the chances are, as experience has shown, that our poor youngster is going to stand in sore need of deliverance from his friends. No conscientious parent needs to be told of the countless ways in which he is constantly offending; any issue of an up-to-date pedagogical journal will confess the hopeless inadequacy of even our best schools, as well as the overwhelming and appalling sins committed in the name of education in the average institution of learning; the doctor and the public health agency are always bemoaning the things that they cannot do, and confessing the inefficiency of what they are attempting to accomplish. It is for just these reasons that such a book as this finds place at this time. It is an attempt to take stock of what may result from some

of the things that these four agencies are doing, and from some of the things that they are allowing to continue unchecked, in terms of the welfare of the little lives which the law, and society in general, consider society's most priceless possession.

There are two distinct senses in which the word "nutrition" may be used in work with children. The first is that which concerns itself with vitamins and amino-acids, with brown bread and fresh milk, with fat-soluble "A" and water-soluble "B," with orange juice and cod liver oil, with digestion and assimilation of ingested food. Important as all this is, it is touched upon only incidentally here. The other sense of the word "nutrition," is that in which the whole economy of the child is summed up in this one word, simply for the want of a better one. In this sense, all the influences that impinge upon the child are considered, whether these be hereditary or environmental, emotional or mental, physical or spiritual, salutary or the harmful reverse. Diet, when the word "nutrition" is used in this sense, bears but a small part of the praise or blame attaching to the condition

of a given child; for it is but *one* of a number of factors, each of course important, but none of overwhelming influence in the end-result. Too often has diet been corrected and improved to the point of theoretical perfection, without getting the faintest improvement in the "nutrition" of the child in the sense in which we are using the term, for workers with children to be willing to content ourselves with remedying this one factor. It is the whole-frontedness of the attack upon the problem, which commends the program here mapped out and recommended.

One more point should be brought out, in this very sketchy view of the subject. That is, that whereas most schemes for the improvement of the health of ailing individuals concern themselves chiefly with *what* is to be done, without giving either the doer or the victim any very hopeful words as to just *how* the remedial measures are to be put across, the plan herein outlined covers both these points. Most of us adults who deal with children,—whether we be parents, teachers, nurses, or physicians,—being fairly well educated folk, know quite well what we *ought* to do for our

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children. The hitch comes in when we try to *do* the proper thing. The regimen here recommended attempts to solve this difficulty, to bridge this gap, by supplying an incentive which will be powerful enough to make the child *want* to do the thing that we want him to do. This is, in the last analysis, the message of this book.

INTRODUCTION

BY

WM. R. P. EMERSON, A. B., M. D.,
BOSTON

IT is a matter of great satisfaction to the worker in a particular field to observe the increasing attention which its problems receive. The finding and correcting of the causes of malnutrition or physical unfitness should be an important part of the work of any physician; and his adoption of the nutrition class method, called by the late Dr. L. Emmett Holt "epochal in the treatment of children," increases his effectiveness many fold.

In a sense the nutrition program is a call for the extension of the care given to infants—one of the greatest achievements of modern medicine. The pre-school and elementary school years have thus far gained most by this

larger undertaking. During recent years the adaptation of this program to young people entering industry and to college students has been signally successful.

An outstanding feature of work thus far is the increasing appreciation on all sides of the significance and importance of health intelligence. In the early years this responsibility lies largely with the parents; but as the child advances in age the problem becomes more and more his own. Accompanying this development is the corresponding growth in appreciation of the necessity of accurate health diagnosis on the part of physicians.

Even at the present time the word health is generally accepted to mean a condition of body free from physical disease. By disease is meant any departure from health presenting marked symptoms. On the basis of the definition of these two terms a child who does not exhibit some one of the specific diseases listed in medical textbooks and upon whom no distinct diagnosis of illness has been made is considered well and is treated as such.

Impairment of growth and development may be of a grave nature, yet if the child

does not manifest a clearly defined disorder he is still considered well, although in this realm of pseudo health there often may lie the early stages of practically all the chronic conditions, including tuberculosis.

The training afforded the student in the medical school develops high intelligence regarding disease, but does little to increase his understanding of health. Therefore, later when he enters the health field he falls back upon routine and rationalization, which, according to Osler, are the two greatest foes to medical progress.

Unfortunately, when a parent, realizing that the child is below par, insists upon a careful and complete examination for the cause, the physician often resents any attempt to change his method of approach. The parent does not care about labels but does know something should be done. Practically all that many physicians do in such a situation is to send parent and child home to return when the difficulties have gone far enough to be classified in medical pathology.

For this reason the health problem, aside from its end-result, disease, is left largely to

the mercies of any one who may chance to be interested in it. It is the no man's land, wherein is found the dietitian, the physical educator, the social worker, the teacher, and others who in a well-organized health plan would be valuable aids and adjuncts.

The victim of this condition of affairs is the growing child; and back of it loom sickness and death,—a morbidity and mortality that increase with the complexities of modern life.

Much confusion has arisen because the problem, as soon as it is attacked, gives evidence that, although medical, it is also educational and social in its nature. This offers immediate opportunity to the lay worker, who is quite right in the essence of his vague feeling that social diagnosis is required. It is largely the fault of our profession not to have made it equally clear that the problems are essentially medical, and that those who can deal best with them are physicians, with their necessary knowledge of pathology enforced by training in positive, constructive health diagnosis and preventive medicine.

Dr. Richardson has done valuable work in

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this new field; and it is fortunate that he has taken the time to put his experience in book form, for the inspiration and guidance of all who are concerned in the welfare of the growing child.

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CHAPTER I

AN OLD DISEASE IN A NEW GARB

STATEMENT OF THE PROBLEM

WHY a new name for an old disease? One might be pardoned for thinking that we have diseases enough already to satisfy the most exacting, without hunting for any more! And yet it is the recognition of old conditions, newly considered and freshly approached from a new angle, with the working out of new and efficient methods for combating them, that makes for increased health. Appendicitis, it will be remembered, was a "new disease," within the memory of a great many of us. New, indeed, it was, by this particular name; but as "peritonitis," "inflammation of the bowels," "typhlitis," and many other high-sounding but indefinite and inexact *nom de plumes*, it had been killing off its thousands as a verit-

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able "Captain of the Men of Death." It was only when we recognized it as appendicitis, and treated it by the new method of prompt surgical intervention, that people stopped dying of the disease. The disease was old, the name new; but the victims were just as dead as dead could be, until the new recognition introduced the successful new treatment. Similar happenings could be related in the case of other diseases.

The disease that is just now occupying the center of the stage, for those interested in the welfare of children, is one that is as old as the race itself. It has not, however, until very recently, been recognized as a distinct clinical entity, with causes, symptoms, diagnostic signs, and treatment of its own. It has been called undernutrition, undernourishment, and a dozen other more or less satisfactorily descriptive names. It is only now that we have agreed to recognize it as *malnutrition*, a real disease, with a clear-cut history, cardinal symptoms and signs, a definite course, and a recognized method of treatment, that we may at last hope to cure sufferers from it, and bring them back to normalcy.

For the mother and the teacher, this newly recognized clinical entity is one that has a special interest; for it is one in which they can play a most important part.

The very fact that the medical profession has been rather slow in waking up to the seriousness of malnutrition in children, and to the importance of detecting and curing it, has created this opportunity. Where the physician is alive to the gravity of the condition, they can be of inestimable value in aiding him to accomplish results. Without their aid, he may be powerless; for in this warfare, drugs are relatively unimportant, while careful attention to details of regimen is everything.

Before taking up either symptoms, diagnosis, or treatment, it may be well to consider this disease in definite, orderly fashion, as we would do with any other. That is to say, let's take a history before we do the physical. After we have done these two things, we shall be in a position to arrive at our diagnosis, and then to prescribe our treatment.

What then shall we find is the history of the child who is suffering from malnutrition? Unlike most other diseases, in which poverty

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or other economic condition may be a predisposing factor, malnutrition occurs alike in rich, middle-class, and poor, without distinction. It is due not so much to the *deprivation* of the right kind of foods, as to the child's *refusal to take* the right kind and amount of food when these are offered to him. This is usually the thing that troubles his mother most acutely,—the fact that he is “finicky” or capricious in his eating. He does not want to eat at mealtimes; when he *does* want to eat, which is a rule between mealtimes, his choice is for things that his mother knows he ought not to have, though she may give them to him in desperation, because they are the only things that he *will* eat. He loves coffee, with lots of sugar in it; sugar heaped on cereals, and in every other form that he can get it, is one of his main articles of diet. In fact, sweets of any and every kind, either as candy or in the form of jellies, cakes, and desserts, are his specialty, and almost an exclusive specialty at that! The only way in which he can be persuaded so much as to taste cooked cereals, is when they have been buried under spoonfuls of sugar; though he needs no urg-

ing to persuade him to consume candy, chewing-gum, ice cream cones, and sodas.

Instead of being active, bright, alert, and good-tempered, interested in play and in school-work, such a child is dull, listless, heavy, fretful and cross, as we get the report from his worried mother. If he contracts one of the acute diseases of childhood that are so common at this age, his chances for a speedy, uncomplicated recovery are greatly lessened, as compared with those of the average normal youngster. His convalescence, thus retarded, is apt to be a most trying experience in the existence of the whole family. He gives a history of frequent and severe "colds," contracted upon the slightest exposure to contagion, or change of temperature. His sleep may be restless and fitful; and he may toss and turn, and grind and grit his teeth.

So much for a rather brief history. What are the physical signs, which will be elicited by the doctor in the course of the thorough physical examination that is such an important part of the routine, in these cases? It should be emphasized here, and it cannot be too strongly stressed, that the physical ex-

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amination should be performed with the child *completely undressed*. For it is an interesting fact that it is only after these children have been undressed, and so can be carefully and completely studied, that some of them will show the signs of malnutrition at all. In other words, many a youngster, when his clothes are on, will seem healthy and well-nourished, as far as facial expression and general appearance are concerned. When he has been stripped, he will show unmistakable signs of malnutrition, even before he has been weighed and measured. For this reason, complete undressing should be a preliminary to any physical examination.

The child showing a typical case of marked malnutrition has a pale, pasty complexion; though it is not often that a real anemia exists, as shown by a hemaglobin estimation of a drop of his blood. His face has a tired, hopeless, "beat out" look, which is quite different from the bright, happy, fun-loving expression of the well child. His whole attitude is one eloquently expressive of fatigue; he is tired out, even before he begins the day's tasks of work and play. He stands like a

tired-out old man. He is round-shouldered, drooping, with the shoulder blades conspicuously sticking out behind like veritable "angel's wings"; his chest is flat and contracted; and his abdomen, owing to the extreme relaxation of all the muscles in a marked ptosis, protrudes like the "bay window" of an elderly business man! This "fatigue posture," as it is called, is precisely like that assumed unconsciously by any one of us adults after a long and tiring day's work. He is "born tired"—tired all the time. He is peevish and quarrelsome; he gets tired quickly, for the reason that he is really tired before he begins. Other children dislike to play with him. He has none of the necessary spirit of give and take that is essential to happy play with other children. He is constantly being scolded and punished for "naughtiness." Of course his work in school is seriously below grade. He "cannot concentrate," his teacher tells his parents; and unless she has some real insight into the nature of his condition, she is constantly trying to prod him on to keep pace with the class,—an obviously impossible feat, of course. He is the "spoiled child" that is

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so irritating to us all. It must of course be understood, however, that not all spoiled children belong to this group.

Frequently his parents wake up with a start, to find that this condition has crept upon their child totally unawares, as far as they have been concerned. He was such a fine, fat, healthy baby, they say, that they long ago ceased to pay any special attention to his diet,—a swing to the opposite extreme from the over-sedulous care so commonly expended upon the baby during the first year of his life. He has entered upon the period familiarly known to doctors and nurses as “the neglected age”; and his parents have drifted along in blissful ignorance of his condition, until something, perhaps his almost complete lack of appetite, has caused them to realize with a start that things have gone wrong. Seriously alarmed, they now go with him from one doctor to another, and from clinic to clinic,—frequently without the slightest benefit. All sorts of things are tried upon him. Tonics, cod liver oil, iron; milk, eggs, olive oil; and Alpine lamp treatments, sun treatments, and massage: all are tried upon

him in vain by the doctors, who run the complete gamut of drugs, foods, and varied therapeutic procedures, in the old, routine way of handling such cases. Faithful as his parents may be in cramming the prescribed medicines down his throat and thrusting upon him the various procedures advocated,—as we are so apt to do, in our naïve belief that “the right kind of medicine will cure everything,” he does not improve; and he will not eat, in spite of the estimable diet lists prepared for him. It is one thing to lead a horse to a prescribed watering trough; it is quite a different thing to persuade him to imbibe therefrom. And so the condition goes on from bad to worse; and the family becomes desperate, fully convinced that their child must shortly pine away and die of starvation!

The definite diagnostic point, that not only establishes the diagnosis but also gives us a measure of the degree of malnutrition from which the child is suffering, is a comparison of his weight with that which is normal for his age and height. This is such an important part of the procedure, however, that we shall leave it for consideration in the next

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chapter, where it will be taken up in very careful detail. Suffice it to say here that, serious as this condition is, it can be said to be curable in the vast majority of instances. It will be our task to tell exactly how this cure can be arrived at.

A word of warning must be given here with regard to the interpretation to be put upon posture as regards the state of a child's nutrition. The little fellow shown in the Frontispiece is actually quite a bit heavier than his average, according to age-height-weight tables; and he is in all ways a sturdy, well-muscled and well developed youngster. And yet, as he stands, he presents a certain degree of round shoulders, drooping posture, and protuberant abdomen. But no one would for a moment consider him a malnutrition case; for the impression given is that of abounding health—an impression, by the way, that his general history bears out. Such a child is to be considered from the standpoint of the correction of his posture, not of his nutritional state, which is excellent.

CHAPTER II

MAKING THE DIAGNOSIS OF MALNUTRITION

TECHNICAL EQUIPMENT AND PROCEDURE

THE first chapter was devoted to a rather general "statement of the problem" of malnutrition. It was necessary to give an idea of the scope of the subject to be considered; and so to touch but lightly upon a number of phases of the problem, which must later on be taken up in some detail, if any accurate working knowledge of the condition is to be obtained. Perhaps the most immediately interesting part of the problem, its outstanding feature, is the making of the diagnosis.

Now in making a diagnosis of any clinical condition, there are always to be considered two sets of symptoms and signs. The *first*

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set comprises those things that *may* be present, the suggestive things, the things that make us prick up our ears and begin to think that possibly the patient may have the disease. The *second* set of symptoms and signs comprises those upon which we make our real, definite, final diagnosis. If a patient has these second symptoms and signs, or a sufficient number of them to satisfy us, then we say that he has the disease; whereas he may have a number of those of the first class or set, and yet not actually have the disease, to whose existence they merely point.

The pictures of the typical case of malnutrition (Figs. 1 and 2) and the legends accompanying them, give a pretty fair summing up of the suggestive signs of this condition. The presence of some or all of these signs puts us on our guard as to the *possible* or *probable* existence of malnutrition, without actually demonstrating that it does exist. It is well worth while recapitulating them here: for a readiness to note them, and to interpret their message, is a most important part of the mental equipment needed for dealing with malnutrition after it has become established, as

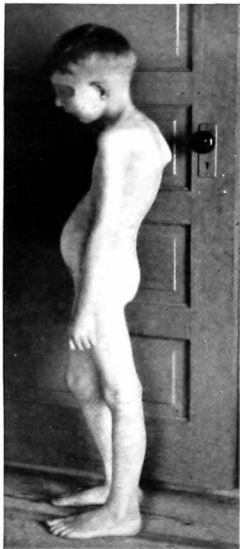


FIG. 1.—A typical case of malnutrition.

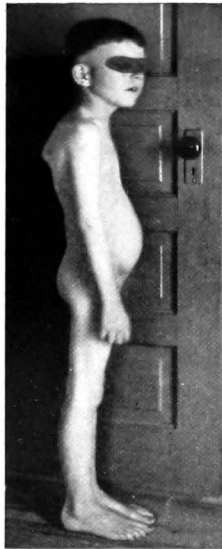


FIG. 2.—A typical case of malnutrition.

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well as for preventing its onset when it is imminent.

First of all, perhaps, comes the general impression of fatigue, or "tiredness," which stands out as such a striking feature of the picture. Both the facial expression of the boy in Figs. 1 and 2 and the drooping posture of his sagging, slumping little figure, speak most eloquently of fatigue of a very severe degree. This is accentuated in its significance to us, when we learn that the picture was taken in the morning, before the child had time to do much more than eat his breakfast and walk two or three blocks to the clinic—which could not be considered a tiring enough task to account for such marked exhaustion! The "don't-care" expression; the dull, lack-lustre eye; the sallow complexion, or "muddiness" of the skin; the frowning brow; all carry out this impression of weariness in the expression. The posture, too, makes its contribution toward the picture of fatigue, in certain well-marked characteristics. There is the sagging, flattened chest, due to the slumping of the muscles that normally hold the chest fairly high; the angles of the scapulæ are quite

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prominent, looking like rudimentary wings, due to the poor tone of the muscles that should hold the shoulder-blades parallel with the surface of the thorax. The abdomen hangs down in a veritable condition of ptosis. This is not so much from the weight of the abdomen itself, as in the similar condition seen in the paunchy middle-aged business man, where the actual increase in weight of abdomen and contents is considerable. Here it is rather from the same lack of tonicity in the abdominal wall muscles that affects all the muscular system of this "chronically tired" child. The combination of flat chest and sagging protuberant abdomen, may give a simulated or even a real increased lumbar lordosis, or forward curvature of the spine in the lumbar region—augmented by the relaxation of the skeletal muscles and ligaments whose duty it is to maintain the erect posture of health. Quite a marked degree of flat-foot is almost the rule in these children, for the identical reasons operative in the rest of the postural deformities; and as a corollary to this, a moderate degree of knock-knee is quite common. So much for the suggestive signs of



FIG. 3.—Weighing without shoes
or outer clothing.



FIG. 4.—Weighing: Stripped
weight.

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malnutrition, as presented by a fairly marked case.

What about the confirmatory, or positive, diagnostic signs? There may of course be physical defects which are causative factors in producing the malnutrition. Bad tonsils and adenoids, for instance, or faulty vision, or cardiac murmurs may be present. We find in addition, however, one never-failing sign, upon which we may base our *positive* diagnosis, no matter how few or how many of the *suggestive* signs we may find. This is the marked difference between the weight of the child as actually obtained at the office or clinic, and the weight that has been determined in some one of the accepted tables of *weight for age and height* as the average weight for a child of such age, height, and sex.

The weighing and measuring of these children, then, constitutes a most important feature of the technique of handling them. And as there are right ways and wrong ways of doing even such apparently simple things as weighing and measuring, it may be worth while going into these procedures in detail.

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It has been noted that it is highly important that the child be completely stripped for the examination. In this way alone can one be sure that no defect is being overlooked. As this procedure is to be adopted anyway, it is not hard to insist that the weight always be a "stripped weight." This eliminates the annoyance of allowing for the estimated weight of the clothes that the child may have been wearing at the time; or of having a change from winter to spring underwear, or the reverse, give an unexpected slump or jump in weight, and so cause unwarranted encouragement or undeserved disappointment. This complete undressing is one of the points that is easily allowed to slip by, in the press of office or clinic work. As parents are inclined at times to urge an exaggerated modesty on the child's part, as an excuse for not going through this routine, it has been found wise to employ a "slipover," which is to be used at all times while the child's clothing is off. This is illustrated clearly in Fig. 24. It consists of a piece of Canton flannel two yards long and of standard width, with a hole cut out in the middle for the head to pass through. This

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takes care of the child's sense of modesty; it also has considerable value for warmth conservation; and it interposes no barrier to the examining physician. Its weight, once determined, is unchanging. It goes without saying that the scale should be of undoubted accuracy. It may be tested by weighing one's self on a scale of known accuracy; and comparing the result with that obtained on one's own scale.

It is well worth the small initial expense, for any one undertaking this work—and it is hard to conceive of a doctor or of a clinic attempting to deal with children nowadays *without* undertaking this work!—to purchase a measuring rod for height determinations, rather than to bother with makeshift improvisations. The measuring rod should be at least six feet in height, with graduations to one-eighth of an inch. At one end is fixed a ground-piece, at right angles with the rod itself. This is placed between the child's feet, while he stands with his back against the rod. A moveable bar slides along the rod, and is brought down to rest lightly but firmly on the child's head, just as the shoe salesman brings

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the sliding portion of his foot-measuring instrument against the ends of the toes, in measuring for a shoe. The reading is taken by noting where the sliding bar stops, on the graduations marked on the upright rod. The procedure is amply explained by the illustration (Fig. 5).

In order to determine the height, in the absence of such a simple but effective measuring rod, it is possible to use a book, held firmly at a right angle against the jamb of a door, bringing it down until it touches the head of the child who is standing with his back against the door-jamb. The child steps out from the door-jamb; and the position of the book is marked with a pencil. This may be measured each time; or an improvised scale may be marked out upon the door-jamb, in feet, inches, and whatever fractions of an inch one desires. It is necessary to be sure that the heels are resting upon the floor proper; and not, as may be the case if one is not careful, upon the "saddle" under the door, which may make a difference of as much as an inch in the recorded height. Fig. 6 shows this simple home modification.



FIG. 5.—Measuring: With measuring rod.



FIG. 6.—Measuring: Against the door jamb.

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In order to determine what a child should weigh at a given *age and height* it is necessary to consult some one of the well-known tables. Perhaps the best known are those worked out by Dr. Thomas D. Wood—commonly referred to as “Wood’s Tables.” They have recently been superseded by the Baldwin-Wood Tables, which are now probably the best and most dependable available. The easiest way to consult these is shown in Fig. 9. Here a “straight-edge” card is placed under the height of the child in inches, shown in the extreme left hand vertical column on the proper side of the card (for “boys” or “girls,” as the case may be). A pencil running down the column giving the age nearest to that of the child, indicated in the horizontal column running across at the top, is stopped when it comes to the straight-edge card. The figure marking the intersection of the two columns, indicates the average weight for that child.¹

¹In order to obtain the “percentage underweight” of a given child, it is necessary to subtract his *actual weight* from this *average weight*, as obtained in the preceding paragraph. A fraction with this difference as the numerator, and the average weight as the denominator, expressed in decimals, is the percentage underweight of that child. An example, cited in

WEIGHT—HEIGHT—AGE TABLE FOR BOYS

Height Inches	5 Yrs.	6 Yrs.	7 Yrs.	8 Yrs.	9 Yrs.	10 Yrs.	11 Yrs.	12 Yrs.	13 Yrs.	14 Yrs.	15 Yrs.	16 Yrs.	17 Yrs.	18 Yrs.	19 Yrs.
38	34	34													
39	35	35													
40	36	36													
41	38	38	38												
42	39	39	39	39											
43	41	41	41	41	41										
44	44	44	44	44	44										
45	46	46	46	46	46										
46	47	48	48	48	48										
47	49	50	50	50	50	50									
48		52	53	53	53	53									
49		55	55	55	55	55	55								
50		57	58	58	58	58	58	58							
51			61	61	61	61	61	61							
52			63	64	64	64	64	64	64						
53			66	67	67	67	67	68	68						
54				70	70	70	70	71	71	72					
55				72	72	73	73	74	74	74					
56				75	76	77	77	77	78	78	80				
57					79	80	81	81	82	83	83				
58					83	84	84	85	85	86	87				
59						87	88	89	89	90	90	90			
60						91	92	92	93	94	95	96			
61							95	96	97	99	100	103	106		
62							100	101	102	103	104	107	111	116	
63							105	106	107	108	110	113	118	123	127
64								109	111	113	115	117	121	126	130
65								114	117	118	120	122	127	131	134
66									119	122	125	128	132	136	139
67									124	128	130	134	136	139	142
68										134	134	137	141	143	147
69										137	139	143	146	149	152
70										143	144	145	148	151	155
71										148	150	151	153	154	159
72											153	155	156	158	163
73											157	160	162	164	167
74											160	164	168	170	171



PREPARED BY BIRD T. BALDWIN, PH.D., AND THOMAS D. WOOD, M.D.

These new Weight-Height-Age Tables, which are similar to the Wood Tables (formerly issued by the Child Health Organization of America), are the most accurate available.*

These tables should be used as a means of interesting the child in his growth, and as a factor in determining the child's health and nutrition.**

* Representing a large group of presumably healthy children most of whom are native born. Tables for technical workers with detailed information can be secured from the American CHILD HEALTH Association

** Encourage the annual physical examination of every child by a physician. (over)

Figure 7

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WEIGHT—HEIGHT—AGE TABLE FOR GIRLS

Height Inches	5 Yrs.	6 Yrs.	7 Yrs.	8 Yrs.	9 Yrs.	10 Yrs.	11 Yrs.	12 Yrs.	13 Yrs.	14 Yrs.	15 Yrs.	16 Yrs.	17 Yrs.	18 Yrs.
38	33	33												
39	24	34												
40	36	36	36											
41	37	37	37											
42	39	39	39											
43	41	41	41	41										
44	42	42	42	42										
45	45	45	45	45	45									
46	47	47	47	48	48									
47	49	50	50	50	50	50								
48		52	52	52	52	53	53							
49		54	54	55	55	56	56							
50		56	56	57	58	59	61	62						
51			59	60	61	61	63	65						
52			63	64	64	64	65	67						
53			66	67	67	68	68	69	71					
54				69	70	70	71	71	73					
55				72	74	74	74	75	77	78				
56					76	78	78	79	81	83				
57					80	82	82	82	84	88	92			
58						84	86	86	88	93	96	101		
59						87	90	90	92	96	100	103	104	
60						91	95	95	97	101	105	108	109	111
61							99	100	101	105	108	112	113	116
62							104	105	106	109	113	115	117	118
63								110	110	112	116	117	119	120
64								114	115	117	119	120	122	123
65								118	120	121	122	123	125	128
66									124	124	125	128	129	130
67									128	130	131	133	133	135
68									131	133	135	136	138	138
69										135	137	138	140	142
70										136	138	140	142	144
71										138	140	142	144	145



PREPARED BY BIRD T. BALDWIN, PH.D., AND THOMAS D. WOOD, M.D.

When taking measurements, remove the child's outdoor clothing, shoes and coat. Take heights with a square, consisting of two flat pieces of wood joined at right angles (a chalk box will serve). The child is placed in a good erect position, with heels and shoulders against the wall or wide board, upon which has been marked or pasted an accurate measure. Age is taken to the nearest birthday.

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(over)

Figure 8
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It will be realized at once that it is much fairer to ascertain what a child should weigh by comparing him with others of his age *and height*, than by taking into consideration his age only, as used to be done,—and still is done by parents, who frequently derive a false and even dangerous sense of security by consulting such tables of average weights for various ages. A case that illustrates this was one of a tall, cadaverous boy of nine who came into the office, and was found to be some twenty pounds too light for a boy of his *age and height*. His mother was amazed to learn this, as she had been congratulating herself

illustration, may make this clearer. Suppose that a child weighs forty pounds, as determined by weighing him on the clinic scales. His *average weight*, i. e., the average weight of children of his age and height as shown by consulting the table, is forty-five pounds. *Forty* subtracted *from forty-five* is five. Then a fraction with this difference (five) as the numerator, and the average weight (forty-five) as the denominator, is five forty-fifths, or $5/45$. In order to change this common fraction into a decimal, expressing percent, one divides the numerator, 5, expressed in decimal form as 5.000, by the denominator, 45, which gives 0.111 as a result. This may be expressed either decimally as 0.111, or as 11.1%. That is to say, the child is 11.1% underweight for his age and height. If it is preferred to express the underweight in pounds, one may simply say that the child is five pounds underweight; and let it go at that. The reason for expressing the degree

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upon the fact that he was some eight or ten pounds heavier than the average child of his age. It was easy for her to recognize the fact, when it was carefully explained to her, that a short boy of her son's age could not possibly need an amount of body-material to cover his small skeleton, that it would take to equip the elongated frame of her son. But the mother's false sense of security had wasted months of valuable time, which might have been spent helping her boy back up the hill to his normal weight, in wondering why he was so pale, thin and easily fatigued.

of underweight in terms of percentages, is two-fold. First, it is of course much more graphic, and expressive of actual conditions, to know just what *proportion* the underweight bears to the average,—that is, what percent underweight the child is. Second, it has become customary in nutrition work with children to set an arbitrary standard for considering a child as a malnutrition case. Some workers take seven per cent underweight, as the point below which a child should be considered to be suffering from malnutrition. Other workers say that this would include such a hopelessly large proportion of our children, that ten percent underweight had better be taken as the limit. If this seems a little complicated, or if the reader is one of those who dislike mathematical calculations, a short cut is available in the "Underweight Reference Tables" published by the American Child Health Association. By referring to these, the percentage underweight or overweight may be quickly and easily found without any calculating whatever.

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As a matter of fact, Emerson has gone even farther in this direction, and disregards age entirely in ascertaining what is the average weight for a given child. As will be seen from the table in Fig. 10, height in inches is his sole criterion. In this table, the figures used are taken from Holt for the ages under six, and from Boas, Burk, and Smedley for the later years. This method has much to recommend it; but has not yet been so widely employed as has the more orthodox weight-age-height method, used in connection with the Baldwin-Wood tables.

The objection is frequently advanced, and vigorously urged, that these tables of average weight do not take into account differences in racial stock, heredity, family predisposition, climatic influences, and various other factors that have been advanced by observers as affecting stature and bulk in the human being. Emerson meets this very rational objection (and cites Holt in so doing), by employing "zones of weight," in which children may be placed according to their percentage weight. Thus, the zone from average up to 20% above, is considered the "safety zone"; anything



FIG. 24.—A "Slipover" for examining, weighing and measuring.

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above this, the "obese" or "overweight zone"; anywhere from average to seven percent below average, the "doubtful" or "borderline zone"; and anything beyond seven percent, the "danger zone." This substitution of zones for single weights is the fairest and most practical way of meeting the objection mentioned. It takes abundant care of any of the variations that might affect weight in reality; and takes away from the parent reluctant to look disagreeable facts in the face, the old familiar argument, "Oh, his father's people were all that way"; or, "My mother's brothers were all as thin as a rail"; or, "Our family are all like racehorses; we are all nervous and thin, but we are wiry, and we have wonderful resistance!" Experience is all against this easy way of "laughing off" the gravity of a condition of underweight in children; and it is helpful to have this zone classification, which meets the hackneyed arguments so fairly and successfully.

Figures, especially fractions and percentages, mean much to some people, while to others they convey disappointingly little. Further than this, it is frequently desirable

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to express nutrition in other terms than by weight alone. One very obvious reason is that, desirable as it always is to weigh a child, it is sometimes necessary to express an opinion regarding him without being able to weigh him. Another is that although weight-for-age-and-height is undoubtedly the best index we have for expressing nutrition, it is not the only one; and may be quite deceptive at times. Several other scales for grading the nutritional condition of children, and expressing this grading, have been devised; and have met with more or less wide acceptance. Perhaps the best known and most generally satisfactory is the very simple one devised by McKenzie, of Dunfermline, Scotland, and adopted by the Bureau of Child Hygiene of the Department of Health of the City of New York. Next to the degree of underweight expressed in percentages, the Dunfermline scale, as it is generally called, is perhaps the most generally known and used throughout this country.

According to the Dunfermline scale, children may be graded into four classes, as follows:

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I. EXCELLENT. In this class is the child who is in superior health,—well above the vast average of so-called “well” children.

II. PASSABLE, or, as some prefer to call those in this group, **FAIR, GOOD, or NORMAL.** Here is placed the child who falls just short of Excellent.

III. POOR. Here is placed the child who requires supervision.

IV. VERY POOR. This is the place for the child requiring medical attention.

Classes III and IV are considered cases of Malnutrition.¹

¹ Criticisms of this simple scale are easy to make, and perhaps in many instances are justifiable. A fair estimate of the case for as well as against it is made by Lydia Roberts, in “What Is Malnutrition?”, Children’s Bureau Publication No. 59, Washington, D. C. She writes as follows:

“The value of this scale lies in the fact that it makes grading easy, because in Groups III and IV it names something definite to be done to a child, and in Group I it explicitly states that a child so graded is not merely excellent as compared with others of a group, but would be so considered anywhere. In making the classification other factors than weight are, of course, considered. The general appearance of the child, the condition of the skin and subcutaneous tissue, the muscular tone and development, the state of the mucous membrane, the vigor or listlessness which may appear in the child’s facial expression, carriage, movements, voice, interest, and attention, all contribute to the decision.

“Even with such a grading system, however, in which the

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classes are fairly well defined, it could not be expected that any two examiners would necessarily classify a given group of children exactly the same. So long as the work is done by human beings, the personal equation will enter in. And yet in a test application of this scale in New York City it was found that physicians agree on the state of nutrition as well as, or better than, they do on even such common defects as tonsils and bad teeth. The use of the scale has been criticized, however, and it must be admitted that the grades are apt to signify very different things, depending on the examiner. It was found in New York City, for example, that physicians in certain sections had become so accustomed to malnutrition that they had come to regard it as a racial or local type, and since they found no children belonging in Group I they had used the scale merely to show *degrees* of malnutrition! The fact that such grading *may* occur hardly seems sufficient ground for abolishing the scale entirely, for it certainly serves a purpose. It would instead seem wiser to make sure that all examining physicians are actually familiar with the physically superior type; that they know the scale, the requirements for the different grades, and understand fully that the standards are to be applied as absolute, not relative, ones. Other classifications are sometimes used, as good, fair, poor; or a five-grade scale of excellent, good, fair, poor and very poor. It matters little what scale is used, however, if the standards for each grade are well defined, and these standards strictly adhered to in the grading. The advisability of grading all children instead of disregarding all but the markedly underweight ones, is evident."

Anything that tends to make doctors, nurses and teachers, as well as the mothers who are usually the first to suspect it, recognize that all is not well with a child, even though he may present no definite "medical" symptoms which cry aloud for attention, is well worth retaining in our equipment. That the Dunfermline scale is at least just such a reminder, seems fairly evident from the evaluation of it made by Lydia

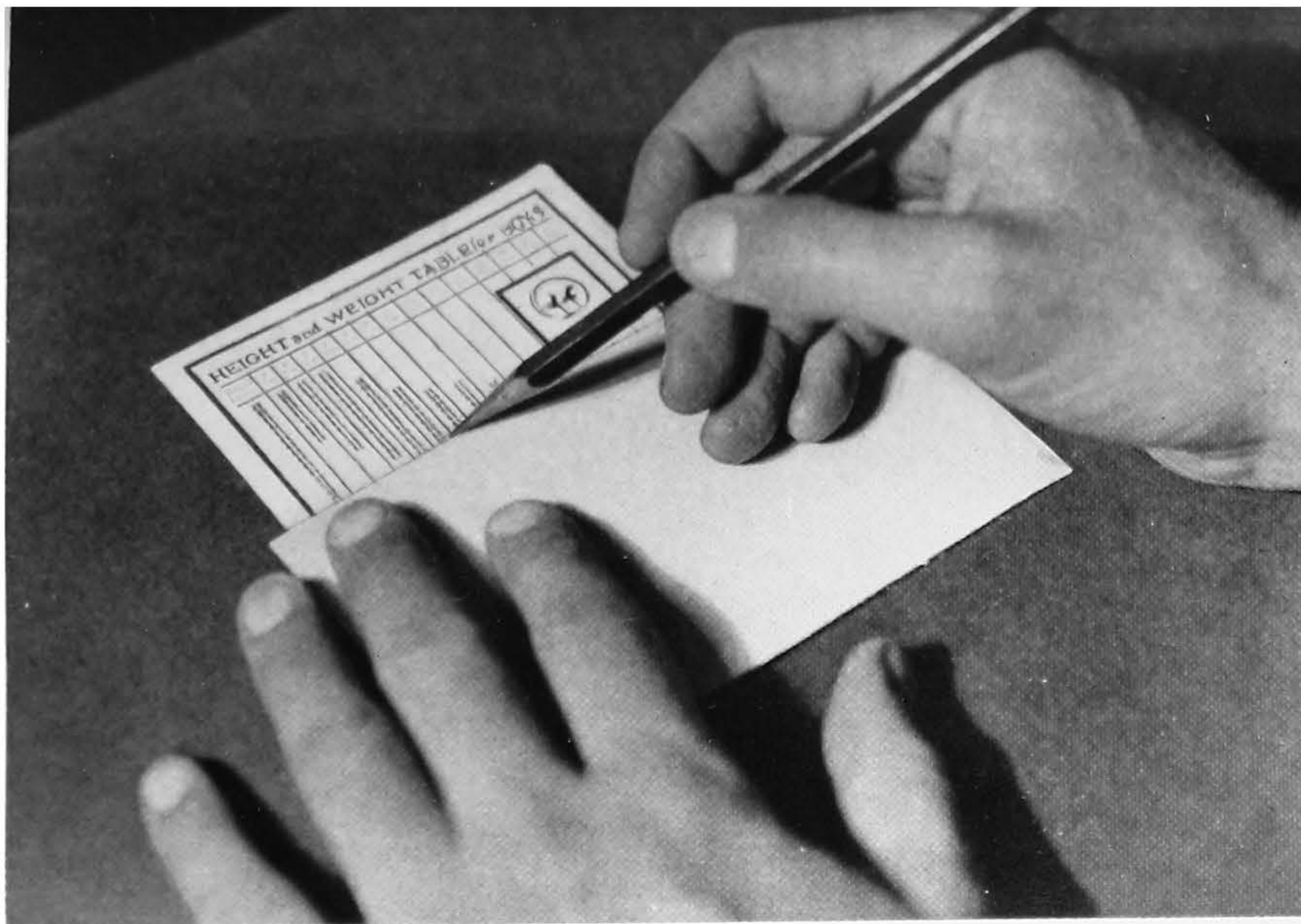


FIG. 9.—Determining desired weight for given age, height and sex.

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Roberts, in the preceding paragraph. It can well be used in connection with the percentage weight scale.

CAUSES OF MALNUTRITION

It has been customary for those not familiar with the condition, to assume offhand that malnutrition is the result of insufficient food: or, if not that, then, of food improperly chosen, prepared, or served. If this were true, it should of course be of much more frequent occurrence among the poor than among the well-to-do or rich. The first surprise awaiting the student of malnutrition comes with the discovery that this is not the case. On the contrary, malnutrition seems to bear no special relationship to the economic status of the family whatsoever. It runs across our variously circumstanced economic life like a broad band or belt, unvarying as it passes from one level to another. Nor is the matter of the proper selection or preparation of the food of the child nearly so important a causative factor as it might easily be supposed that it would be, were one to reason by arm-chair methods, rather than from actual clinical experience and observation of cases. While of

course food lacking in the proper elements, or improperly prepared, finds no defenders amongst nutrition workers, still it has not been found that remedying either of these faults is the most important thing to be done, as would be the case were they the important etiological factors we are prone to believe them.

What then *have* been found to be the causes of this definite and real disease of childhood? Five groups or classes of causes may fairly be considered as operative, in the sense of being prime factors. In order to do justice to the disease, it will be necessary to consider each group in a chapter by itself.

The five classes are as follows:

A Faulty Health Habits.

B Faulty Food Habits.

C Family Strain.

D School Strain.

E Physical Defects.

Together these contribute to the picture of Fatigue, which is so characteristic of this whole condition that it will be considered in a separate chapter.

CHAPTER III

FAULTY HEALTH HABITS

“AMERICANITIS”

TO give a catalogue of the faulty health habits leading to malnutrition in children, would be to run over in review the well-known and oft-inveighed-against conditions of American life, intensified as these have been of late years. Especially black is the picture painted by the Sunday Supplement magazine writer who finds that tirades against our home conditions and the environment of the young make such paying copy. To be quite frank, however, the picture *is* none too rosy. Late hours; indulgence in “movies” to any hour of the day or night, with its attendant eyestrain, poor ventilation, and emotional over-stimulation; premature participation in the social whirl, in the form of children’s par-

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ties that excite and exhaust; premature erotic stimulation by the newspapers and the "tabloids," with their daily bath to filth in sordid picture and print; the constant urge for speed, both physical and emotional,—all these are influences that threaten children today, as has never before been the case.

In addition to these special hazards of today, however, there are the faulty health habits that we have always had with us. Many children have an insufficiency of fresh air,—too little outdoor play by day, and too little ventilation of their sleeping rooms by night. This is especially apt to be true in our cold northern latitudes, where actual discomfort from the cold is an added deterrent to proper ventilation. Many children do not have separate beds, but are compelled to share not only the sleeping room but the bed itself with another member of the family. While there is of course no basis of fact for the superstition that the older or stronger of two bed-fellows "takes the strength of" the younger or weaker, it is nevertheless most undesirable for a child to be so situated that he cannot have a bed to himself. Many a child is seriously

harmful by the disturbance of sleep that results when a tossing bedfellow pulls the covers from off him, or makes his nights hideous by snoring. Even when the child has a bed of his own, he may be compelled to share a room with an older person who retires at a much later hour, and wakes him by turning on the light and perhaps engaging him in conversation. It is not always easy for such a child to get to sleep again without much loss of valuable time. Conversely, an older brother who has to arise early in the morning, so as to be in time to get to his work, may awaken the child, who then finds himself unable to get to sleep again much before it is time for him to arise for the day. It is well known that lying in bed for long periods without falling asleep, provides an ideal situation for the beginning or continuance of the habit of masturbation. While this is not in itself the physically or psychically harmful thing that it was once considered, and is never in itself the cause of malnutrition, it is none the less to be avoided; and anything that tends to favor long periods of sleeplessness is to be guarded against most carefully. Insomnia from whatever cause may

be a most annoying condition. Whether it is in itself an actual cause of malnutrition, or whether it results from it, is not always easy to say.

The question of play and exercise is a most important factor in influencing the health of these children. Whereas romping, vigorous sports, of a sort that develop the big muscles of the body, used to be a thing that every boy *could* get, and most boys *did* get, this is not true of our children today. Traffic congestion in the city, the suburb, and even the village, are rendering such play increasingly difficult, if not, as in many places, impossible. Exercise that is enforced, under gymnasium conditions, is much less desirable than free play that is indulged in because the child enjoys it for its own sake. The element of spontaneity is a most important one, in its influence upon the benefits to be derived from exercise. The child who for any reason whatsoever becomes a spectator rather than a participator in any sport,—a “fan” instead of a contestant,—of course loses the major part of the benefit to be derived therefrom. Whereas the colleges have long suffered from this evil, it has come about

that the high schools, and even the lower public and private grammar schools, are now to a great extent tarred with the same stick. In other words, the boy who most needs the advantages to be derived from participation in school sports, is the one least sought out, and most apt to be shouldered aside because of his lack of ability to help toward the success of his school team.

The other extreme may be met with, of course. This is the condition presented by the child of the over-active, never-still variety, who plays with every ounce of strength that he possesses, and actually exhausts himself by the very strenuousness of his endeavors. While whole-hearted play is of course desirable, what is meant here is a nervous over-concentration upon the activities of the moment, of such an intense degree that it seems to drain the child of his vigor. Then he is up and at it again, with no restraint of rhyme or reason. Intervals of rest, or at least of less strenuous play, offer no appeal to youngsters of this type; they must be at it "with all that they have got," as the expression goes. They are the ones who "run off all that they eat,"—a

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very fair and accurate sizing up of the situation, by the way. Such children are quite unwilling to take five or ten minutes of rest and relaxation before meals,—a simple measure that would be priceless in diminishing the ill effects of their over-strenuousness. They are so eager to gobble down their meal so as to get it over and done with, that they are quite unwilling to devote any time at all to such a drab, uninspiring occupation as resting! While as a matter of personal experience these “gobblers” have been found to be far fewer than the “dawdlers” at mealtimes, still they can make parents’ lives a burden, when their overeagerness to get on with the absorbing business of active play is at the bottom of their hurry.

One of the most vicious of the faulty health habits of the American school child is,—school! So true is it that school attendance, as ordinarily exacted, has become one of the real menaces to the health of the child of school age, that it has seemed necessary and most desirable to discuss this particularly faulty habit in a separate chapter, under the significant title, “School Strain.” No time will therefore

be given to its discussion here; except that as one of its byproducts, homework, infringes upon the rest of the day, it seems to be appropriate to consider that phase of it in this connection.

This is not the place, of course, to discuss the pedagogic value of that bane of parents, homework. It is however only fair to register here the fact that its physical value is decidedly on the wrong side of the ledger. For many of these below-par children it must be actually forbidden, before their condition can be cured. Homework must be done either in the afternoon or at night, of course. If it is done in the afternoon, very little time is left, in northern winters, for outdoor play, before the sun goes down. If on the other hand it is allowed to wait until after dinner, it consumes the whole evening, and frequently becomes an additional excuse for the inevitable attempt to put off the hour of retiring. Many sensitive children find their afternoon play time spoiled by the thought of unfinished homework thus hanging over their heads. The parent who fears lest his child lose something of value, or even,—horrible thought,—be left

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back, because of what he will lose if he is excused from doing homework, may gain enlightenment if he will go over his child's assigned tasks with a view to discovering for himself their educational value. The fact that having the child excused by doctor's certificate from the task of doing homework never seems to affect his academic status or his promotion, at least in the case of youngsters under ten or eleven years of age, seems a pretty good reason for a parent's availing himself of such a means of relieving his child from the bugbear of homework.

Obviously, if the ordinary school routine is too exacting for the child, as it undoubtedly is in a great number of instances, the same thing holds with regard to extra demands upon him, in the way of outside instruction of various sorts. It is surprising to find how many parents there are who, while bewailing the strain to which their children are subjected by the school, do not hesitate to add to this burden by inaugurating music lessons, dancing lessons, art lessons, language lessons, and all sorts of other outside social and intellectual activities. "Practising" with all its horrors is too fresh in

the minds of many of us adults, even after these many years, to require anything more than mere mention in order to be unhesitatingly condemned. Religious instruction is not infrequently added. Hebrew school, for an hour or two every day after regular school is ended, is becoming the accepted thing for vast numbers of our Jewish children. Special confirmation classes for instruction in church doctrines are not unusual at certain periods of the year. Rehearsals for church pageants, Christmas and Easter festivals, etc., can use up many hours of precious rest time, if allowed. Even that wonderful boon to boyhood, the Boy Scout movement, may be rather a bane than a blessing to the individual to whom it is added as the last straw that breaks an overburdened back.

There is one source of fatigue to the point of exhaustion, and consequently a serious cause of malnutrition, that seems to be on the increase. This is the custom of taking children on long automobile tours through the country. Parents who are themselves very fond of this diversion, are apt to be most indignant when it is suggested to them by the physician who

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TABLE OF AVERAGE WEIGHTS OF CHILDREN AT VARIOUS HEIGHTS
Also Showing Weights 7% and 10% Underweight for Height

Height Inches	BOYS			GIRLS			Height Inches
	Average Weight for Height Pounds	7% Under- weight Pounds	10% Under- weight Pounds	Average Weight for Height Pounds	7% Under- weight Pounds	10% Under- weight Pounds	
*21	8.2	7.6	7.4	7.9	7.3	7.1	21"
*22	9.7	9.0	8.7	9.4	8.7	8.5	22"
*23	11.1	10.3	10.0	11.0	10.2 ¹	9.9	23"
*24	12.5	11.6	11.3	12.5	11.6	11.3	24"
*25	13.9	12.9	12.5	14.0	13.0	12.6	25"
*26	15.3	14.2	13.8	15.5	14.4	14.0	26"
*27	16.9	15.7	15.2	17.2	16.0	15.5	27"
*28	18.5	17.2	16.7	18.8	17.5	16.9	28"
*29	20.2	18.8	18.2	20.5	19.1	18.5 ¹	29"
*30	21.7	20.2	19.6	22.0	20.5	19.8	30"
*31	23.2	21.6	20.9	23.4	21.8	21.1	31"
*32	24.5	22.8	22.1	24.9	23.1	22.3	32"
*33	25.9	24.1	23.3	26.0	24.2	23.4	33"
*34	27.3	25.4	24.6	27.3	25.4	24.6	34"
*35	28.7	26.7	25.9 ¹	28.6	26.6	25.7	35"
*36	30.0	27.9	27.0	30.0	27.9	27.0	36"
*37	31.6	29.4	28.4	31.5	29.3	28.4	37"
*38	33.2	30.9	29.9	32.7	30.4	29.4	38"
39	34.3	33.8	32.7	35.7	33.2	32.1	39
40	35.1	35.4	34.3	37.4	34.8	33.7	40
41	39.8	37.0	35.8	39.2	36.5	35.3	41
42	41.7	38.8	37.5	41.2	38.3	37.1	42
43	43.5	40.5	39.2	43.1	40.1	38.8	43
44	45.4	42.2	40.9	44.8	41.7	40.3	44
45	47.1	43.8	42.4	46.3	43.1	41.7	45
46	49.5	46.0	44.5	48.5	45.1	43.7	46
47	51.4	47.8	45.3	50.9	47.3	45.8	47
48	53.0	49.3	47.7	53.3	49.6	48.0	48
49	55.4	51.5	49.9	55.8	51.9	50.2	49
50	59.6	55.4	53.6	59.2	54.2	52.5	50
51	62.5	58.1	56.3	61.1	56.8	55.0	51
52	65.8	61.1	59.2	63.8	59.3	57.4	52
53	68.9	64.1	62.0	66.8	62.1	60.1	53
54	72.0	67.0	64.8	70.3	65.4	63.3	54
55	75.4	70.1	67.9	74.5	69.3	67.1	55
56	79.2	73.7	71.3	78.4	72.9	70.6	56
57	82.8	77.0	74.5	82.5	76.7	74.3	57
58	87.0	80.9	78.3	86.6	80.5	77.9	58
59	91.1	84.7	82.0	91.1	84.7	82.0	59
60	95.2	88.5	85.7	95.7	89.9	87.0	60
61	99.3	92.3	89.4	102.5	95.3	92.2	61
62	103.8	95.5	93.4	110.4	102.7	99.4	62
63	108.0	100.4	97.2	118.0	109.7	106.2	63
64	114.7	106.7	103.2	123.0	114.4	110.7	64
65	121.8	113.3	109.6	130.0	120.9	117.0	65
66	127.8	118.9	115.0	137.0	127.4	123.3	66
67	132.6	123.3	119.3	143.0	133.0	128.7	67
68	138.9	129.2	125.0	146.9	136.6	132.2	68

Figure 10

Emerson's Table of Weight for Height

is called in to treat the child taken ill in the course of one of these jaunts, that the touring itself is the basic cause of the child's fever. They assure him, with confident belief in the truth of their statements, that the child himself loves motoring even more than his parents do; that he is never tired of going; that they are really taking the trip not for their own pleasure, but for his. As a matter of fact, automobile touring is an exceedingly tiring experience, even for adults,—though the interest of the sights along the way, the exhilaration of speed, etc., may combine to render us oblivious of its exhausting effects. Add to this the tendency to overeat and especially to overindulge in drugstore sweets and drinks; the danger of getting questionable water or still more questionable milk; and the frequently unavoidable postponement of meals to fit in with the exigencies of travel on the road; and it is not surprising to find either acute illness or chronic depletion attending upon motoring for children. Whatever may be its benefits for older boys and girls, when shorter distances are covered, it certainly is a source of real

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peril for younger children, as the doctor sees it indulged in during the summer season.

The list of faulty health habits has not been exhausted, by any means. Enough has been said, however, to bring very clearly and forcibly to the mind of the worker with children, the fact that childhood, which we think of as a time of joy and pleasure and play, may in reality be anything but that. It is for the adult who is most directly concerned, to study very carefully the program of the child who is below par, with a view to determining whether the causative factor in his case may not lie in just this overburdening of his day with theoretically valuable but actually vicious activities—vicious because fatiguing out of all proportion to his ability to bear them. Obviously, if the cause is here, no amount of improving of a faulty diet, or removing of physical defects, is going to produce a cure. Just such overlooking of the essential factors in the evaluating of the problem, is perhaps the commonest cause for the dissatisfaction that not infrequently ensues, when an operation for the removal of tonsils and adenoids fails to bring to pass the cure of everything wrong that was

FAULTY HEALTH HABITS 45

promised in advance by some overzealous surgeon. In order to do away with a result, it is rather important that we remove the right cause!

CHAPTER IV

FAULTY FOOD HABITS

POOR APPETITE

IN discussing the causes of malnutrition in children, there is one class that bulks so large, both in its overwhelming effect upon the welfare of the child, and in its influence upon the peace and happiness of the rest of the family, that it deserves a whole book, rather than a chapter, to itself. Anyone who has dealt with children in their homes will realize at once that the group referred to is that of vicious food habits. So common are these, one is tempted to say so almost universal, that a consideration of the subject of malnutrition would be hopelessly inadequate, if it did not deal with this important phase of this great American childhood disease.

The number of individual food crotchets and food idiosyncrasies that may be encountered

is legion. There is the aversion to vegetables; the inability to eat some one particular food; the dislike to food of a certain consistency, like that of oatmeal with its "mucilage-like feeling," or beans with their "squashy" softness, or bread crust with its hardness. There is the repulsion to certain *tastes*; the refusal to take food of a given *color*; and a disgust, amounting in some cases almost to nausea, at the *odor* of this food or that. Some children consistently and steadfastly refuse to clear up the portion of food given them at a helping. Some have certain rituals that must be gone through with, if they are to finish their meals. Some dawdle in maddening fashion. Some hesitate about starting, though they seem to get along well enough when once they have begun. And some make a prompt start, and then seem to lose interest after taking but a few mouthfuls. Still others hang back in the traces, and have to be nagged at and goaded constantly, or they never would get their food down.

One could go on almost indefinitely, if it seemed worth while, cataloguing one after another of these varieties of vicious food habits.

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But the main thing about them all, the summing up that the mother usually gives, is that commonest of all complaints made to the doctor: "My child won't eat."

What are we going to do about it? For there is no doubting the truth of the assertion, in the vast majority of these cases. Anyone who is so unfortunate as to be a guest at the table where such a child is a member of the family group, can testify with bitterness on this subject. He knows that the whole conversation centers around the food likes and dislikes, the food performances past and present, the food habits and vices of the child. Each one of the family takes his or her turn in trying to make the child eat. Blandishments, threats, exhortations, promises, cajoleries, are brought to bear in turn; all to no purpose. Meanwhile the small tyrant basks in the limelight of the combined attention of the whole tableful, both family and guests; and hears what he *will* do and what he will *not* do, recounted at great length and in great detail, as if this were news of the most vital moment.

Such a prostitution of the delightful half-hour that a family mealtime can and should

be, is nerve-wracking to the guest, exhausting to the parent, and, worst of all, cruelly harmful to the child. The last fact never seems to be realized by the elders who have allowed themselves to drift into this very common situation. When remonstrated with, they seem greatly surprised to learn that the condition is a quite unnecessary one. For it *can* be terminated at any time, provided they are willing to exercise the necessary firmness, which can easily be brought to bear by parents who realize the importance of the situation. Practically all of the varieties of vicious food habits that have been mentioned or hinted at, can be cured by the routine treatment about to be described.

In order that this treatment be prompt and effective (for if parents will stick it out, they may win the battle in a few days), they will find it necessary to institute a definite regimen for the giving of food. It must be understood at the outset that there is to be no deviation from this, on peril of rendering the whole cure abortive.

It may be best to set down what is to be done, in the form of a series of

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RULES FOR PARENTS FOR THE RE-ESTABLISHMENT OF APPETITE.¹

I. Establish definite mealtimes—four or five a day, according to certain conditions to be considered in a moment.

II. Make it an inviolable rule that nothing is to be taken at any other time, upon any pretext whatsoever.

III. Eliminate all sweets from the dietary,—"added sweets," perhaps, is a better way of putting it, as it is neither desirable nor necessary that there should be special cooking of unsweetened food for these children. This prohibition includes not only such palpably undesirable sweets as the ubiquitous granulated sugar and candy; but as well such camouflaged members of the fraternity as honey, syrup, jellies, jams, cakes, sodas, sundaes and drugstore drinks. For a quick cure, even such an apparently harmless addition as sugar on cereals had best be done away with. Results follow such Spartan

¹ For further discussion of this question of appetite, see the author's "The Nervous Child," G. P. Putnam's Sons, 1927.

measures so much more promptly and dependably, that it seems well worth while "going the limit" at once.

IV. Cut his butter down to scanty proportions and stop his cream. For there is a very common but erroneous belief that the way to fatten these youngsters is to feed them fats,—next to excess of sugar, the worst thing that could be given to them. Frequently a child is brought to the doctor in the fall, pale, constipated, losing in weight; with the story that the mother cannot understand why the youngster has failed to do well, when he has had such quantities of "real country milk,—so rich it was almost half cream!" The overrich milk is the cause. As a matter of fact, if a child's milk is found to be very rich, it should be partially skimmed. Certified milk, for instance, with its 4% or more of butterfat, is too rich for the average child to do his best on. If two ounces are removed from the top of the bottle of Certified as a routine measure, it will be found far more satisfactory for use with both babies and older children.

V (perhaps most important of all). Do not urge, or even ask, the child to eat this, that,

or the other thing. Say nothing more to the child about his food, than would be said to the casual guest at the table. If he eats little, it is quite all right; if he eats nothing, it is still perfectly all right. He may even leave the table with food untouched, after twenty minutes. In fact, it is the rule that he *must* leave at the end of this period; the effect of this rule upon the "dawdling" child, is sometimes surprisingly prompt. (Needless to say, this "20-minute rule" does not apply either to the normal child, or to the one who bolts his food.)

This Rule V is, of course, the point upon which most mothers fail, at first. It seems to them little short of inhuman for anyone to expect a mother to sit by while her child slowly starves himself into a condition of weakness from which it may take no one knows how long for him to recover,—if indeed he ever does! What these mothers fail often to realize, is that with all their efforts at teasing, cajoling, persuading, to the extent so familiar in our American households at table, the child has already drifted into a serious condition of malnutrition; and that what is being urged upon her is for the sake of reclaiming him from just

this situation, into which her mistaken course has allowed him to lapse. It is one of the essential factors in Rebuilding the Child. Nothing but this attitude will suffice, in some of the worst of these cases of poor or lacking appetite. If the mother cannot for the good of her child summon up the fortitude to carry through this point, along with the other changes that she has been asked in the preceding paragraphs to make, she had much better not attempt to cure him at all. Certainly, she had better not begin the attempt, if she has not counted the cost beforehand, and determined to carry it through to the bitter end,—even if the end *should* prove to be bitter, as it practically never is. She may greatly fortify her resolution, if she will but realize that appetite is given us, not as a sensuous pleasure merely, but also as a very essential gauge to tell us how much food we need. As soon as we cease tampering with this valuable but rather sensitive indicator, it will resume functioning; and in place of our fussy oversolicitude, which can never be an accurate guide for another's wants, Nature's own automatic indicator will take all the responsibility

from the worried parents, and produce results that they could never even have approximated.

It is not possible to prophesy with exactness how soon a deranged appetite will recommence functioning properly, on this new regimen. It is but natural that the time required should vary with the degree of faithfulness with which the rules are carried out. It is frequently surprising to find how easily and simply the new life is entered upon. And it is veritably a new life, for a family which has suffered with such a child for a long time. Many a youngster amazes the gloomy family prophets who were sure that he would rather starve to death than go without sweets, that he would not eat a mouthful unless fed by his mother, or that he would do some other equally foolish and perfectly improbable thing, by the ease and speed with which he adjusts himself to the new regimen. As a general rule, the end of the second day sees the cure well on its way toward establishment. Many youngsters see the light, and start with genuine relief, even on the first day. In some cases, several days are required; but careful and painstaking consideration of the details of the

history of these cases will usually elicit the fact that for some reason or other there has been a departure from the strict letter of the law. While this may have seemed justifiable, it can hardly be claimed that the cure has failed, when it was not applied as recommended.

It might perhaps be putting too much of a strain upon the resolution of the mother, to ask her to refuse the teasing for "between-meals nibbling" forbidden by Rule II, were the ordinary long intervals between meals to be observed. It is customary, therefore, to insert either a mid-morning or a mid-afternoon meal, sometimes both, into the daily schedule of meals. The rule is to maintain as nearly as possible the family meal hours for the three main meals; and to introduce mid-morning and mid-afternoon lunches, when it is possible to put them three hours before the following dinner or supper. For instance, if the family eats at 7:30, 12, and 6, it will probably be well to introduce a mid-morning lunch at 9, and a mid-afternoon "snack" at 3. If, however, the main meals are usually eaten at 9, 12:30, and 7, a mid-afternoon lunch at 4

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may be as much additional as it is wise to offer. Again, if mealtimes are 7:30, 1, and 5:30, a mid-morning lunch at 10 may be the only additional meal necessary.

Of what should these four or five meals consist? It is not necessary to give a series of lists of various foods to be offered to these children. It may be suggestive, however, to set down some general rules in accordance with which their meals may be planned.

(a) **BREAKFAST.** An orange. A cooked cereal, without butter, sugar, or cream, but with as much milk as is desired with it.

A glass of milk. A small glass to be offered, with the privilege of having it refilled.

Bread—brown, graham, or whole wheat. Brown raisin bread is often gladly taken, while plain brown bread is not so much relished. Sparing spread of butter.

A strip or two of bacon.

(b) **MID-MORNING LUNCH.**

Brown bread.

A glass of milk.

If the child takes this lunch in school, a large apple or ripe banana may be substituted for

the milk as being more convenient to carry in his lunch basket.

(c) DINNER.

One starchy vegetable.

One or more green vegetables.

Brown bread and butter.

A glass of milk.

Simple pudding (not classed as a sweet).

(d) MID-AFTERNOON LUNCH.

Crackers, preferably Graham or Arrow-root.

A glass of milk.

(e) SUPPER.

A glass of milk.

Graham crackers, whole, or broken up to be eaten with milk; or, vegetable pureé.

Stewed fruit, prunes, apple sauce, or apple baked without sugar.

As mentioned elsewhere, this regimen will be far more effective if a mid-afternoon nap or rest period is introduced after the dinner meal, before the mid-afternoon lunch.

It may be objected that there is no meat here, and that egg has been omitted. As to meat, this need not be prohibited in cases where

for any reason the parents feel anxious that it be included. In any case, chicken once or twice a week makes a very desirable addition to the dinner. As meat is distinctly *not* a necessary food for the growing child, however, its omission can hardly be criticized. In the same way, egg is allowed if desired, every other day being considered frequent enough. So many children seem to have either an egg idiosyncrasy, or to be affected somewhat disagreeably when eggs are first given, that it is well to give the egg gradually, offering rather small amounts at first. Boiled fish may also be allowed.

Perhaps this is as good a place as any to pause and defend one point in the regimen just outlined,—namely, the complete elimination of “added sweets” from the dietary of the undernourished child, which constitutes Rule III. Defend it we must, if it is to stand; for it is a point upon which there is much difference of opinion, both lay and medical. Whether the various arguments for the retention of sugar in the diet are all as ingenuous as they seem, or whether they cover some ingenuous rationalizing on the part of those who

put them forth, need not be discussed here. It is a fact, however, that sugar has its valiant defenders; and the arguments advanced in its favor must be considered. Here are some of those most frequently encountered.

Sugar, its defenders state, is one of the essentials of the diet. Together with the proteins and the fats, it is one of the three great food classes. How can a child be expected to get along without it? Sugar is known to be one of the best of fuels; and as such can be utilized by the body, so as to spare the proteins for their more important function of building the body. Sugar is essential to many foods; without it they would not be palatable. What adult would eat oatmeal without sugar; and if an adult would not, how can he expect a child to do so? Nature has been prodigal of sugar, placing it in most of the fruit juices, many of the vegetables, etc.; why should man be less generous to his children than Nature has been? Is it not common knowledge that Eskimos and Arctic explorers eat huge quantities of gumdrops in order to enable them to withstand the extremes of cold?

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These various arguments must be given the attention that they deserve. For they do deserve attention, as they are advanced by thoughtful scientific workers in good faith, as well as by overindulgent and rather weak-kneed parents to defend their lack of moral courage in attacking a bad habit on the part of their children. Before considering them, however, it may be as well to give one overwhelming argument that is founded on the experience of many nutrition workers. This is the unanswerable one that "it works." Just what does this mean? It means simply this,—that when sugar has been completely eliminated from the diet of a stubbornly resistant case of malnutrition, it is very common to find that an apparently hopeless lack of appetite responds at once to the treatment, and the child begins to eat as a normal child should and does eat. Further, it has frequently been the experience of workers with malnutrition cases, that in spite of the reports of parents that everything ordered is being carried out, a given child cannot be made to gain. It is a safe procedure to tax the mother of such a child with having failed to play fair, by still

allowing the child to retain some sweet in his diet. Surprisingly often it has been found to be the case that such an attack confounds the mother, and surprises her into admitting that she has been doing just this thing. As soon as she admits this, and musters courage to eliminate the sugar, the problem of the stationary weight ceases to be a problem, because the lacking appetite becomes re-established.

Taking up the arguments in detail, let us admit at once that a proper amount of sugar is of course indispensable to any well-ordered diet. But a proper amount is quite a different story from a huge excess. The per capita consumption of sugar in this country is a number of times as great as that of any other country under the sun; whereas there is no country of these whose inhabitants use so much less sugar than we, where any injury has been reported from such a lack. Sugar *is* present in many foods,—but it is present, not as the devitalized white sugar that is present in such gross excess in the granulated sugar additions that are so common with us, but as natural sugars. Further than this, most of the

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starches that are taken into the body have to be changed into the simpler mono and di saccharides (sugars) before they are utilized, so that a completely sugarless diet, even were not one grain of *added* sugar to be given, is not easily available. This will readily be recognized by anyone who has ever had to cater for a diabetic patient, and give him a really "sugarless" diet. These different sources of sugars render the addition of still more sugar absolutely superfluous. True, sugar *is* a good fuel, and easily burned up to make energy. But the growing child needs food not only to sustain his "status quo," as the adult does; but also for the growth which is constantly going on, changing him from the seven- or eight-pound bundle that he was when he arrived here, into the hundred and fifty or more pound adult which he will eventually be. Sugar is *not* a food for growth mainly; and growth is one of the main concerns of the child. As for the gumdrop tale, anyone who has read the Arctic explorer, Stefansson, will have his own opinion with regard to the desirability or the indispensability of gumdrops as provender for life in the Arctic.

Turning now to the less scientific but more easily understood objection,—how about the taste of a sugarless diet? Isn't it true that no sensible adult will eat oatmeal without sugar? The answer to this will vary according to the location in which the question is asked,—Scotland or elsewhere. Does anyone eat hominy without sugar? Is this question asked to the north or to the south of Mason and Dixon's line? How about sugar on rice? Almost as disgusting to a Southerner, as sugar on white potato would be to a Northerner, or sugar on oatmeal to a Scotsman, or the sugar on candied sweet potatoes to one who was brought up to think of this delicious vegetable *as* a vegetable, and not as a confection. In other words, there is nothing inherently proper or improper, so far as the use of sugar with any food is concerned; it is simply custom that dictates. As a matter of fact, many children nowadays never have sugar on any cereal. Such children seem to find the morning dish as delicious as do those of us who have become so dependent upon an acquired taste that we cannot relish ours unless it is overloaded with sugar. Even the child who has been ac-

customed to heap sugar upon his cereal, soon comes to like it the more rational way that gives some chance for the savoring of the individual taste of each of the various grains, when once the sauce of genuine appetite has come to grace his meal.

And now for the argument of dad, or the bachelor uncle, or of anyone who likes to achieve a questionable but cheap popularity by buying his way, just as the prodigal "spender" can always gather friends (?) about him by "treating,"—what is childhood without candy, anyway? Can you imagine being a child, and not having candy? Children are children but once,—etc., etc. All of these arguments have been used to excuse excessive liquor-drinking; so that we are not altogether unprepared for them. Of course the answer is simple. The healthy, hearty child with a good appetite, rosy cheeks, clear eyes, is unquestionably a happier child, getting a far greater dividend of joy out of his childhood, than is the poor little undernourished youngster that we see whining at the table when asked to eat, but never without lollypop, chocolate, or chewing gum in his mouth.

Candy and happiness do not, unfortunately, go together. Ask the candy-eating child how much fun he gets out of his toothaches! For the dentists have told us with no uncertain voice the effect of sweets upon dental caries, or as a matter of fact of any food whose residue is allowed to lie about in the uncleansed mouth; and who ever heard of a child who brushed his teeth after every indulgence in between-meals sweets!

As to the effect upon appetite, no one who has ever indulged in a sundae or an ice-cream soda needs to be told what becomes of his appetite for the best dinner in the world, if he sits down to it a half hour later. What do the sweet cakes at "five o'clock tea" do to the desire for a six o'clock dinner? Just why do sweets act this way? It may be because of the well-known cloying effect. Perhaps the fact that the caloric content is usually so high has something to do with the destruction of appetite. More calories we want for the undernourished child,—yes; but we must remember that there are "calories,—and calories." All calories are not of equal desirability, as will be brought out fully in chapter XII.

Other food values than the caloric have to be considered.

And one thing more ought, in all fairness, to be remembered here. Whatever may be said about the value of sugar for the well child, the regimen here prescribed is laid down for the definite purpose of "*rebuilding* the child,"—the child who is suffering from malnutrition's most characteristic symptom, lack of appetite. Neither adults nor well children are under discussion here. And just as the fairness or advisability of giving a sick child a needed dose of medicine can hardly be judged by the parent's willingness similarly to dose himself or one of his children who is not ill, so it seems a little labored to apply this criterion to the prohibiting of sugar from a child who is ill of malnutrition, and whose cure may well be said, in many instances at least, to depend upon the improved appetite which this prohibition alone can bring about.

This rather simple diet—some may call it extremely simple—has been found perfectly satisfactory in the treatment of these children. Modifications are made freely, when circumstances make them seem desirable. When the

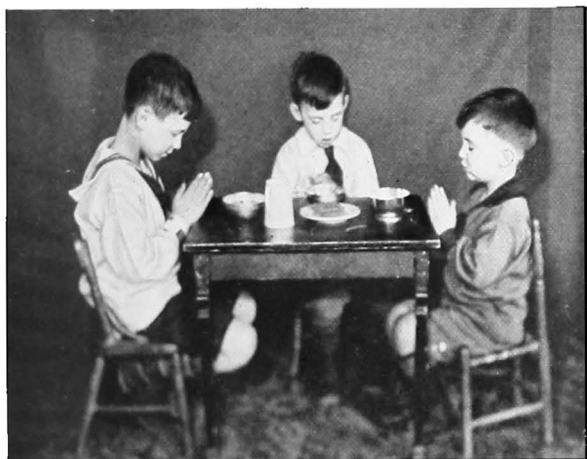


FIG. 11.—One of the small forms that seems well worth observing.

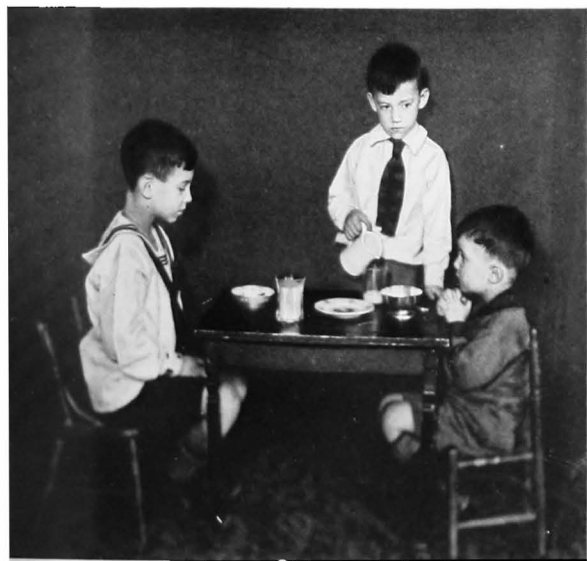


FIG. 12.—A small table with small utensils for small folks.

mother once understands the general scheme on which the dietary is planned, she may fill out the menu as the variations of the market and her individual pocketbook allow. This plan has been found considerably more satisfactory than specifying each item of the diet in detail, and so keeping the mother dependent upon the whim of the doctor.

There are many small points that have been found most helpful in carrying out the common-sense regimen for accomplishing proper and adequate nourishing of these children, outlined in this chapter. For instance, it has been found that it is well worth while investing each meal with some of the formality that we grown-ups use in our own social intercourse at mealtimes. A blessing asked in turn by the participants at the meal, is frequently omitted, in these hurrying times; but there are some of us that cling to it as something that is well worth observing. The custom of letting the children of the family eat at a small table, and conduct their own conversation and actions under the stimulation and the check of each other's censorship, makes a new interest for children who have been bored to extinction

by the conversation of their elders. Small dishes and utensils for the children's table are of course essential. It is distinctly helpful to introduce into the mealtime procedure the gracious custom of our hardy forbears, who served themselves and each other, without thought of social inequality in the fellowship of home service. Madame Montessori has made good use of the interest involved in this ministering of the children to each other, the one chosen to serve a meal being considered the one favored, rather than the one discriminated against.

It has been found that to some children there is an undue stimulation in the presence of others at the table. In such cases, it is wise to allow the child to have his own separate table, either in the room with the others at the regular mealtime, or at a time and place apart from the rest of the family, as experience may dictate. Such children do far better by themselves; and as the principle of individualization is so vital in dealing with children, it is but common sense to accord each child the treatment that seems to give the best results.



FIG. 13.—“Let him be as one who serves.”



FIG. 14.—Some children eat best when given a table by themselves.

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A bibliography of helpful suggestions is appended:

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CHAPTER V

FAMILY STRAIN

THE TEST OF HOME

MORE and more, in discussing the factors that make or mar the life of the child, one comes round to the realization of the appalling importance of the home itself in its effect upon the future citizen. The adjective "appalling" is used advisedly. For no matter how much is done to humanize the school, to improve the surrounding social influences, to correct faulty health habits and to remove physical defects, there always remains in the background that overwhelming mass of influences that together make up the determining trend of the youngster, namely, the home into which he is born.

It would be but a tiresome reiteration of familiar things, to attempt to enumerate the complete list of harmful home factors, which

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working singly or in combination can do so much to bring about the condition that we have agreed to call malnutrition. Suffice it to say that the term "family strain" would be an adequate diagnosis for many a severe case. Anything that tends to make a child unhappy, because lacking the sense of security to which we are all entitled; anything that causes him to fall a prey to worry, conscientious doubts, overreligious scruples; anything that gives rise to "phobias," to use the psychiatrist's technical name for fears,—can cause a serious degree of physical debility of the sort that we are considering. And as the parents are the ones by whom the home is created and maintained, they are naturally the ones who have the greatest power to help or to harm him.

So much has been said of late in accusation against the parent, that it seems a shame to add another word of reproach here. So many of the harmful things that he does to the child are so palpably due to his ignorance of their effect, however, that it will perhaps not be amiss to mention a few of them in passing. We have said that one of the things that every

child is entitled to,—we might have said one of the things that every sensible human being craves passionately,—is a sense of security. There is no better way of letting a child attain this, than to have him drink it in unconsciously by seeing and feeling a perfect emotional accord between the two beings who mean the most to him,—namely, his father and mother. Every visible discord that arises has a tendency to shake this solid foundation of security. Disagreements between his parents, especially as these are concerned with himself, are naturally most upsetting. For the sake of the child's best good, parents should sedulously avoid giving evidence of these, even if they exist. If mere disagreement between his parents can be so unsettling to the welfare of the child, what must be said of the terrific, unsettling effect of an actual breach between his parents, such as occurs when separation or divorce takes place? Can anything more tragic be imagined, than such a shaking of the elemental foundations of his life and trust? Too little thought is given, in the wrangle about rights for the husband and rights for the wife, to the question of the rights of the children to

the settled life and emotional stability that are secured by having loving parents, and that are hopelessly placed in jeopardy by conjugal strife.

Jealousy of a brother or sister who is unwisely preferred by parents, can work quite as harmfully against the child's emotional, and hence against his physical, wellbeing. Fears, aroused through misguided remarks on the part of his elders, whether directed toward subduing insubordination on his part, or simply unwisely uttered in his presence, can be most potent in their evil results.

An interesting instance of this occurred recently. A child whose father is a semi-invalid, and whose mother is constantly burdened over life in general, was chatting with a group of his friends. "Let's talk about what we will do next summer, when we get to the country," said one little fellow, with all the eagerness of optimistic childhood. "You don't know; something might happen so that we might never get there," responded the youngster whose family life has, all unconsciously on the mother's part, become to him a burdened and sad existence, where the future is dark and un-



FIG. 15.—A good place for complete relaxation—on the floor! A folded army blanket makes a soft enough mattress.



FIG. 16.—A popular resort.

certain. The saddest part of this incident is its needlessness; for as it happens the illness of the father is not of a nature to cause apprehension of his death, or fear of a straitening of family finances, at all. There has simply been an unrealized gloom thrown over the child, by a parental attitude that to him spells something out of all proportion to the gravity that others know it possesses; and yet no one of the family group has sensed its paramount importance to him.

Such apparently unimportant things as nail-biting and finger- or thumb-sucking are at times absolutely insurmountable barriers in the way of a return to normalcy. This is due partly to the psychic effect; but still more, probably, to the fact that both of these habits tend to increase the flow of saliva, and so probably impair digestion. Thumb-sucking, especially, is one of the worst enemies to appetite. In fact, it has been found virtually useless to attempt to proceed against faulty or lacking appetite, so long as obstinate thumb-sucking is persisted in.

Needless to say, too severe punishments, and their indirect results in the form of un-

happiness, sense of unjust injury, brooding, abasement of self-esteem due to shame, etc., may give rise to real physical impairment, which may be either temporary or of long duration. It is easy to understand how much injury to nutrition can be wrought by that vicious form of punishment, once so much in vogue, depriving a child of his dinner. It is hard to conceive of a form of punishment more ridiculous, or more cruel. Many a parent, on the other hand, has come to learn that the deferring of some hotly contended point of discussion from the critical moments just preceding dinner to the restful, relaxed period immediately following that meal, is the Solomon's decision that settles many an otherwise insoluble problem. Almost as bad was (honesty compels the use of the present tense, "is") depriving a "bad" child of his play,—especially of his outdoors play. While these things may seem so self-evident that the mere mentioning of them to sensible parents seems an unnecessary irritation, experience has taught that they are far too common in present day life to be omitted from such a discussion as this. Even that barbarous sur-

vival of bad old days, "keeping in after school," is allowed in too many so-called "up-to-date" schools, for us to flatter ourselves that we have gotten as far along the way of progress as we could wish were the case.

A factor that cannot be scrutinized too closely is the nature of a child's play, and the character of his playmates. The child whose play is chiefly solitary, is entitled to especial consideration in this regard. The "only" child is notoriously prone to "nervousness," and its attendant malnutrition. The nature of a child's play will naturally be influenced to a great extent by what there is available for him to play with. And this brings naturally to mind the paucity of equipment for either constructive work or rational play, in the average home today. In many a supposedly admirable home, it would not be overstating the case to say that not one thing specifically designed for the use of the children has been provided. How many homes in which there are children possess a carpenter's bench; a kit of tools with which a carpenter could accomplish even the most limited bit of repair work; a bit of play space with swing, seesaw,

swinging rings, or trapeze; a spot in which an honest "mess" can be made without offending a landlord, upsetting another tenant, or outraging an injured parent? Is it any wonder that the child of the retiring, pliant type withdraws into the satisfying world of books or the even more delightful world of make-believe; and that the active, strenuous youngster "runs the streets," or lands in the juvenile court, from sheer animal spirits? Nor is the providing of a welter of senseless, hit-or-miss toys any solution of the problem. Too *many* toys are only slightly less harmful than too *few*; boredom and ennui come as rapidly from surfeiting, as from starvation!

"Spoiling" must also be mentioned, among the most glaring of parental faults. This, be it remembered, rarely comes from *too much* affection; but rather from an injudicious, unthinking display of affection. The spoiled child is frequently the underpar child. Similarly, it is but fair to mention the child whose physical development has been interfered with almost to the extent of actual crippling, by the unwise ministrations of overzealous nurse or parent. Such youngsters manifest the most

amazing and almost unbelievable awkwardness, sometimes to the degree of almost complete helplessness, in the use of arms and legs, hands and feet. Naturally such overzealous care is not common among the children of people of moderate means, for the very best and most obvious of reasons. But among the children of the very wealthy such instances are by no means as rare as might be supposed. Even in homes of far less affluence, they crop out now and again, and are most difficult to deal with because of the almost hysterical and perverted affection lavished upon a child by an unwise mother; for the mother is far more likely to be the offender here than is the father.

Similarly the youngest child may suffer in ways that are not at first sight clear. He comes latest in the lives of his parents, when much of their early zeal for a Spartan parenthood has evaporated. He has not only doting parents, but also elder brothers and sisters often only less doting, and frequently even more so. His whims have the finality of sovereign law. With so many servants, is it to be wondered at that he is frequently as helpless as any other pampered scion,—almost a veritable

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cripple, as a result of the unwise personal services rendered so freely and so constantly that he has never either seen the necessity, or had the opportunity, of learning to help himself?

Chapters could be devoted to the various ways in which home and family may contribute toward malnutrition in the child. Enough has been indicated, however, to put the worker with children on his guard against a very subtle and insidious cause of malnutrition, which he must ferret out and eliminate if he is to bring about the cure of the condition. Parents who are offenders in these respects, are frequently, whether consciously so or not, the most prolific in excuses and false reasons and alibis. Red herrings in abundance will be drawn across the trail, when the investigator of home conditions gets uncomfortably near to his object. But he cannot help the child as he should, if he allows himself to be diverted, by even the most skillfully fabricated rationalizations, from the true cause of the condition that he has set out to cure.

CHAPTER VI

SCHOOL STRAIN

THE LONG SCHOOL DAY

TO most of those who deal with children, the term "school diseases" has a perfectly definite, accepted meaning. By this term is commonly understood that class of acute contagious diseases, such as measles, whooping cough, mumps, scarlet fever, etc., from which the runabout child has been sheltered more or less completely by the fact that his home life is naturally an existence from which infection is pretty definitely excluded. True, he may become infected with diphtheria by a "carrier,"—a well person who carries the germs of diphtheria around in his throat, unaware of the fact that he is a menace to the community. But such cases are rare; for in most of these diseases, direct contact with a person suffering from the malady is necessary,

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in order for a child to become infected. The moment the child enters school, however, this element of contact, previously lacking, is supplied in abundant measure, as anyone who watches children closely, and sees how they hang over and about one another in their play, will readily recognize. In the case of diphtheria, of course, we can prevent such infection absolutely, by raising the child's resistance to the safety point through injections of "toxin-antitoxin." But in the large majority of diseases, such protection is not to be had. Hence the crop of "school diseases," for the detection of which we so carefully examine the incoming classes,—with how little success, the experience of the average mother of school-age children eloquently testifies!

One of the most brilliant of our modern educators, however, has used the term "school diseases," with an entirely different connotation. By it she means the diseases that are produced by school life itself; such diseases, for instance, as eye strain, spinal curvature, flabby muscles, poor chest expansion, frequent colds, not to mention the results of emotional strain, worry, stress of competition, shame,



FIG. 17.—Playground on a city roof.

over-eagerness for high marks, and the thousand and one things that make the beginning of school life a time of such trial and tribulation for thoughtful, serious-minded parents. If these are not "dis-eases," with all the implications and connotations of the good old Anglo-Saxon derivation of the word, then the doctor who deals with children hardly knows what to call them. Baffling they are, indeed; for he does not know quite how to approach them. School diseases they are, in all truth; for except for the school they would not occur, or else would occur in such mild degree that their cure would be a simple matter. Hopeless they seem; for the good orthodox medical way of curing disease by removing the cause is barred, in this land of the free, where everyone is by law and custom entitled to all that the schools can give him, whether it be a knowledge of the three "R's," an ability to declaim "The boy stood on the burning deck," or the acquisition of a fully developed case of malnutrition!

For malnutrition is what the school and its attendant living conditions are producing, in anywhere from one-third to two-fifths of our

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child population. By malnutrition is meant this condition we have been discussing, characterized by a degree of underweight of seven percent or more below the average, relaxed musculature resulting in stooping posture, sunken chest, and protuberant abdomen, and a condition of chronic fatigue. Every thoughtful teacher knows that she has never had a class in which there was not a goodly proportion of just such children as these. That they cannot be made to keep up with their grade, is axiomatic. That the time, energy, and spirit of the conscientious teacher are hopelessly consumed in heroic efforts to accomplish this impossibility, while the brighter and healthier children are compelled to suffer from the deprivation of the share of her attention that is due them, is common knowledge. It is common knowledge among educators and parents alike; and among the pupils themselves as well, though they do not express their conviction, inarticulate as children are when it comes to such things.

If such a result of the effort to educate children were unavoidable, it would have at least the virtue of its very inevitability to justify

it. Parents might then fairly choose whether they preferred to have their children educated, and physically unfit; or ignorant, but vigorous and healthy! Such, in effect, *is* the choice that many parents actually do exercise; and send their children to school, where their health is seriously crippled, because they feel that there is no escaping both horns of the dilemma. To many teachers, too, there has seemed no way out; for the curriculum has called for so many subjects, with so much time to be devoted to each one, that it has seemed as if the merry procession *must* go on, in spite of its disastrous effects upon the health of the pupils. And this physically crippling process fails even to educate, every so often; as is evidenced by the large percentage of "left-backs," and of children who shake the dust of the schools from off their feet the very moment that they are old enough to secure working papers,—provided that the truant schools have not long since claimed them.

Educators and parents have failed to realize that such a system has neither effectiveness nor inevitability to recommend it. It is not effective; witness these throngs of unsuccess-

ful exhibits of the inefficiency of our efforts to educate. And it is not inevitable; for a more excellent way has been found, and bids fair in time to become as universally understood and as generally adopted as any other principle in education. We need not take time to discuss its ineffectiveness; for it is granted by educators who read with discernment the figures of school advancement and school attendance. We may devote our full attention to discussing its inevitability.

For a layman in pedagogy to discuss education, is admittedly a rash procedure. A doctor, himself a member of a profession which jealously guards its prerogatives from interference at the hands of "laymen," hesitates to enter the arena in such a tilt. From a medical standpoint, however, called in as he is to treat so many sufferers from malnutrition, often caused by nothing more nor less than the tangled skein of influences that constitute "school-life," he cannot avoid doing so.

Some years ago, I began writing notes to the teachers and principals of under-nourished children who came for treatment, expressing the conviction that a full school day was more

than they were able to stand, and asking that they be allowed to attend a half session only. This was done on the principle that a child's health is more important than his schooling. Both parents and teachers were told that it was a matter of secondary importance if children "lost their grade" by being "left back"; and they were urged to disregard, at least temporarily, this fear of retardation. In almost every instance the co-operation asked for, was accorded.

And then the absolutely unexpected happened! These children gained, of course; that was to be expected. For in addition to the shorter day and the lessened work and worry, they were ordered to take a daily nap, drink certified milk, and spend much time in the open air. What they did *not* do, to every one's great surprise, was to drop behind in their classes! Children who had before been dropping behind, began to make their grades. Those who had showed a lack of interest in their studies, began to manifest a degree of attention hitherto unknown on their part. And youngsters who had been thorns in the flesh of long suffering teachers, began to find out

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how thrilling school work could be, and how much more fascinating it was to use their wits in mastering it than in trying to best their teachers. Now, instead of warning parents that their children may drop behind educationally during this process of physical building up by shortening the length of their school day, the assurance is confidently given that they will do *better* work educationally, as a result of the shorter school hours.

How is this to be explained? That is a problem for the schoolman to solve. The practicing physician is trained to note phenomena, rather than to account for them logically. A schoolman of long experience, to whom this surprising experience was brought for explanation, offered the following solution. He pointed out that the private schools, which are of course laboratories for testing out new educational ideas, have long since given up the long day for their lower grades, realizing that the child's capacity for learning is exhausted after three hours of work, or even less. The public schools, unable to make this radical departure, have by force of circumstances been compelled to put the most im-

portant of their subjects early in the day, when the child is relatively fresh and rested, leaving until the tired hours of the afternoon the studies considered less basically important. Consequently, the child who has rested, played, and napped in the afternoon, comes with a far fresher and better equipped mind to the relatively more important work of the next day's morning hours, than does the youngster whose reservoirs of vitality have not had time to refill, after their complete emptying during the preceding long school day.

It is well known that hard-headed business efficiency experts have long since set the seal of their approval upon the apparent paradox that a man can do more work in an eight- than he can do in a ten-hour day. The Almighty on Sinai proved a better appraiser of human nature than did the savants of the French Revolution, when He prescribed one day of rest out of seven. This custom has been proved necessary by man, who has found out to his cost that a seven-day week is far less productive of results than one of six days. Every farmer's boy knows that it is one thing to lead a tractable horse to the watering trough,

but quite another to persuade him to partake of its contents when he is not so minded. Prolonged detention at the watering trough, in such a case, is quite as ineffective as similarly prolonged urging of a child to imbibe at the fount of knowledge. Attention, like thirst, is not to be stimulated at the will of a wiser intellect. Our dominance over the child mind is sharply delimited by our inability to compel his interest.

What are the conclusions we should draw? They seem almost too obvious. On the one hand are our hopelessly overcrowded schools. Classes of forty, fifty, and even sixty children are surely a travesty on education, when the human limitations of teacher and pupils are taken into account. Keeping order, not teaching lessons, is the major task in such overcrowded classrooms. Children come out at the end of the school year physically, mentally, and emotionally worse off than when they started in the fall. On the other hand, there has been suggested the expedient of halving the school day for the pupil, letting each teacher divide her class into two, the more alert group and the slower group. The first

half of the day is to be given to one half the class, which is then dismissed to make room for the second half under the same teacher.

There are two theoretical objections to this plan, which is of course not ideal, but only a practical temporary solution. One is that the teacher would object to such a course, as doubling her work. The other is that since many parents want their children cared for for six hours a day, they might repudiate any such attempt to curtail their hours of freedom from child-tending. A third reason, sometimes advanced, is that it would be difficult to get children to school for these different sessions, especially where the school bus is employed for gathering up pupils throughout rural sections, and bringing them to the consolidated union schools.

The best way to answer these theoretical objections is to see how parents and teachers actually react when the suggestion of such a change is made. This has been tested time and time again. Whenever they have been asked, teachers have vied with parents in the enthusiastic hope that some time such a helpful system might be tried. Teachers have unani-

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mously expressed the conviction that they could cover more, rather than less, ground as a result of such a halving of overcrowded classes, with a resulting disappearance of the need for most of their "disciplining." Parents have unanimously agreed that the shorter hours would mean the removal of the most dreaded phase of school life, fatigue. They would welcome, rather than resent, such an effort to combat the unhappy condition known as "school strain."

Doctors who have tried the method outlined above of having children excused from the afternoon session, find that their main problem in the cure of malnutrition is in a fair way to be solved by thus shortening the day's schooling. The answer to the objection relative to the school bus and the hours of attendance, is that the bus was created for the children, not the children for the bus!

There is still another objection that will be met with by anyone, whether physician, educator, or parent, who attempts to shorten the present long school day in the interest of the health and efficiency of the pupils. This is, that there is a very strong movement on foot

in the experimental schools of the very first rank, to *lengthen* rather than to *shorten* the present long school day! This sounds at first blush like a pretty definite refutation of the case against the long school day; for the reason that these fine schools all have physicians who study the effect of changes in the curriculum, and who would hardly countenance any such step if it were found to be harmful to the children.

The answer to this claim is easily made. It is that *under ideal conditions*, such as obtain in such ideal schools as these, the long school day can of course be made much better than a shorter one, by alternating play with work, outdoor exercise with indoor study, shop-work and gym with formal, purely intellectual subjects. Further than this, such schools are almost a unit in allowing and encouraging a far freer, more "dynamic" form of study, as compared with the "static," constrained, strictly supervised discipline of the ordinary school. It is therefore absolutely beside the point for the ordinary school, in a blindly imitative attempt to keep up with pedagogical styles and fashions, to ape the increase in the length of the school day, without duplicating

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the ideal conditions that go to make such a lengthened day desirable in the case of the experimental schools that are making this change.

The question is often asked by puzzled observers, just why the schoolmen are so militant for the longer day, and so resistant of all efforts to shorten the present long day, when it would seem as if it were to their advantage to favor the shorter hours. The answer to this seems to be that it is the natural and almost inevitable tendency of any institution to attempt to broaden and extend the field of its activities. It is also to be observed that while the administrative members of the school world,—the supervisors, the superintendents, the principals, and the school committeemen,—contend staunchly for the retention of the present day or even for its lengthening, this is not the case with the teachers who are actually doing the front line duty, and who are in touch with the children at first hand. Whenever the teachers are given an opportunity to speak freely, without outside pressure to influence their expression of opinion, they will be found to be almost a unit in favoring the curtailing of the school

session, under the conditions operative in the vast majority of our schools today. Unfortunately, such an untrammelled expression of opinion is not always available, in our school systems as at present organized. School loyalty, as it is called, is invoked to color the public expression of opinion on questions of school policy; and an effect of unanimity is thus frequently given out, that is very far from being an expression of the reasoned judgment of the real thinkers on the teaching staffs.

Of course, the plan suggested above of dividing the school population into two groups, allowing each teacher to cover the curriculum with one half of her class at a time instead of with the whole class at once, is far from being ideal. It has, however, one very strong point in its favor. It can be tried at any time in any school, without costing one single cent to parent or tax-payer,—which is something that can be said of no other educational improvement that has been proposed. The answer sometimes put forward that this has already been tried many times, in the so-called “part-time” classes that are in vogue in New York City and in other crowded cities,

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without great success, is of course entirely disingenuous. Such so-called "part-time" classes are not part-time at all in reality; they are simply "compressed" full-time classes or sessions, where recess time is abolished, and one half of the children are forced to come early and leave early, while the other half come late and go home late,—about as far from being the real half-time sessions advocated above as it is possible to conceive of having. Needless to say, these classes always have been a failure. The true half-time classes, in the comparatively few instances where they have been given a trial, have proved an undisguised blessing, as testified to by children, parents, teachers, and physicians alike.

NAME REF'D BY	DATE BORN		HEIGHT AGE	WEIGHT SHOULDER UNDERWEIGHT	IMP. "	OC. "	HEAD--
FAM. HIST.	Father Name Address Business Ad.	Tel.	Th. Less Malg. Alcohol Nervous	Mother Marriages	Brothers and Sisters		
BIRTH HIST.	Precursors Full Term	Labour	Length Cm.	Chlor-form. Asphyxia	Wt.	By Ounce By Scale	
FREEDOM HIST.	Event	Entirely Partially	.... Mo.	..... Mo.	Days..... Hours	Days..... Hours	Why Wanted
Note							
PAST HIST.							
PRES. HIST.							
Left Hand				Right Hand			
HEARS	Exam.						Temp. Cm. Head Cm. Chest
GEN. HIST.							
SKIN							
DEVELOP							
HEAD							
NECK							
CHEST							
HEART							
LUNGS							
ABDOMEN							
GLANDS							
LEMS							
SPIKE							
EYES	I. Vision II. Refl.	SO	Sh Dev	Strab.	Pupils Equal to:	I. Light II. Anom.	
NOSE	Shape	Drain (Thin, Thick Bloody)	Breathing	Acute (Left Interval)			
EARS	I. Hearing II. Exam.	Canal	Drum	Mastoid Tap			
MOUTH	Tongue Cheeks	Pulse Pharynx	I. Tonsils II.	E-nos Phar.	Teeth		

FIG. 22.—History and physical examination chart for private physician.

CHAPTER VII

PHYSICAL DEFECTS

MAKING THE CHILD "FREE TO GAIN"

WITH the recent vogue of the nutrition class there has developed a tendency on the part of welfare agencies, schools, settlements and other organizations to carry on this work without medical supervision and co-operation. There may have been some excuse for such a course, in that doctors have sometimes been slow to sense the importance of giving real thought and serious attention to children who are not "downright sick."

More and more, however, with the growing popularity of the periodic health examination for supposedly well people, whether adults or children, there has developed a willingness on the part of doctors to take a real interest in this important group of patients; as well as to acquaint themselves with the best methods of diagnosing and treating them.

Now it is, of course, perfectly possible for teachers or welfare workers to pick out of any school or settlement all those children whom they have found to be underweight by means of the routine described in a preceding chapter, and then to bring to bear upon these selected children many of the general rules and regulations that have been found helpful in improving the weight and general welfare of undernourished children. Valuable as all this undoubtedly is, and commendable as it might be were there no way of accomplishing something better, it falls far short of being the best way to handle the problem. For it must always be remembered that each person is best considered as an individual. Whenever we attempt to treat folks in the mass, we are apt to overlook some of the most important points. If we are to give to these underweight children the best that present-day science has in store for them, we must give *each* of them a complete *medical* examination. Such an examination, however, presupposes a physician equipped with special knowledge of the problem with which he is called upon to deal; and it is not always possible to secure a physician

NAME _____ HOSPITAL NO. _____ NUTRITION NO. _____ DR. _____
 DATE _____ ADDRESS _____ NATURITY _____ SEX _____
 AGE _____ YES _____ NOS _____ HEIGHT _____ WEIGHT _____ NORMAL WEIGHT FOR HEIGHT _____ LBS. UNDERWEIGHT _____ % UNDERWEIGHT _____

HISTORY

FAMILY HISTORY

PAST HISTORY

Born at full term _____ Labor _____ Condition at birth _____
 Born at mos _____ 1st Tooth at mos _____ Walked at mos _____ spoke at mos _____
 Breast-fed _____ Bottle _____ Mixed _____ Weight at birth _____

PREVIOUS DISEASES (WITH DATES)

Measles _____	Otitis (Earache) _____	Tonsilitis _____
Mumps _____	Rheumatism _____	Operations _____
Scarlet-fever _____	Meningitis _____	Chorea _____
Diphtheria _____	Pneumonia _____	Convulsions _____
Whooping-cough _____	Bronchitis _____	

GENERAL HEALTH AND HABITS

General Health _____ Good—fair—poor _____ Frequent colds. Yes—No _____
 How long underweight _____ Last date when well and strong _____
 Repeated attacks indigestion without apparent cause _____ Yes—No _____
 Habits as to Tea _____ Coffee _____ Ice water _____
 Candy or sweets between meals _____ Nail Biting _____
 Washing down food _____ Bed wetting _____
 Does child take cereals? _____ Milk? _____
 Sleep _____ Mouth open—quiet—restless—snoring _____ Nap _____ Hrs. _____
 Bowels regular daily _____ Yes _____ No _____ What Laxatives Used _____

PRESENT ILLNESS AND CHIEF COMPLAINT

SUMMARY OF DEFECTS FOUND

Underweight for age and height _____	lbs _____	% _____
Carious Teeth _____	Number _____	Condition _____
Signs of Nasal Pharyngeal Obstr _____	{ Mouth breather _____ Nasal Voice _____ Granular Pharynx _____ Tonsils _____ Adenoid Mass Palpated _____ Cervical Glands Enlarged _____ Ear Drums Dull _____	
Summary of Diagnosis _____		
Recommendations _____		

PHYSICAL EXAMINATION

INSPECTION Bright—dull—nervous—phlegmatic—apathetic
GENERAL CONDITION Good—fair—poor
MUSCLES Firm—flabby
HEAD Normal _____ Bosses prominent _____ Pediculi _____
EYES Pupils equal—unequal _____ React to light—distance _____ Motions _____ (normal/abnormal)
 Blepharitis _____
 Vision _____ Right _____ /20 _____ Left _____ /20 _____ (Snellen's test)
NARES Clear—crusted—discharge—spur—deviated septum
MOUTH Normal—open _____ Cough _____ Herpes _____ Mucous membrane, normal—pale
TONGUE Normal—moist—dry—brownish coat—white coat
THROAT Normal—congested—granular—discharge
TONSILS Normal—large—bulged—cryptic—infamed—absent—infected
GLANDS Normal—enlarged _____ ant-cervical—post-cervical—epitrochlear
TEETH Good—Number carious _____ Approximation. Good—poor
EARS Right—Drum _____ Normal—dull—retracted—bulging—perforation
 discharge _____ Hearing _____
 Left—Drum _____ Normal—dull—retracted—bulging—perforation discharge _____ Hearing _____
HEART Area dullness _____ inches left mid-sternal line _____ inches right mid-sternal line
 Apex—4th—5th—6th—space-in mid-clavicular line _____ outside _____ inside
 Action _____ Regular—irregular _____ Sounds. Clear—impure _____
 Murmurs _____ Location _____ Time _____ Transmitted _____
LUNGS Resonance good throughout _____ Respiration good throughout
 Rales _____ D'Espine to—Dorsal Vertebrae _____
ABDOMEN Normal—large—distended—tympanitic—tender—hernia
LIVER Dullness _____ space _____ 4th to costal border _____ niple line
SPLEEN Felt—not felt
GENITALS Normal _____ Prepuce _____ Long—adherent—circumcised—infamed
EXTREMITIES K.J _____ Present and equal—absent _____ Edema: Present—absent
SKIN Smooth—rough—clear—scars _____ Vaccination. Present—absent
SPINE Normal—rigid—curvature—round shoulders—winged scapulae
CHEST Normal—barrel—flat—funnel—pigeon—Harrison's Grove
FEET Arches. Good—Flat _____ Station. Good—poor
URINE Color _____ Specific gravity _____ Reaction _____ Albumen _____ Sugar _____ Cassé
 Wassermann Test _____ Pirquet Test _____

FIG. 23.—History and physical examination chart for hospital or clinic.

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to the complicated, over-full blank, that it is apt to be left uncompleted; whereas a shorter blank, sufficiently detailed to cover the important points, stands a much better chance of being filled out in its entirety. This is a matter to be decided by the individual physician. The main thing to be kept in mind, is that an accurate inventory of the condition of the child is to be made and recorded. If this is done, the particular manner of its doing may safely be left to the doctor interested in the problem presented to him.

Undernourished children show characteristic physical defects. Some of them, as mentioned in a preceding chapter, are symptomatic of the condition—are in fact the direct *results* of malnutrition. Other physical defects are directly *causative* of the condition. Still others are probably in both categories, cause and effect; for it must be remembered that diseases and their effects usually constitute a vicious circle, so that the bad results caused by certain conditions in turn contribute to make these original conditions worse, and so on, ad infinitum, like the proverbial cat chasing its own tail. Thus it will not always be possible to say

offhand whether a given physical defect has caused the malnutrition, or whether the malnutrition has caused the defect; whereas we shall probably be quite within the bounds of truth if we say that both are in a measure true! Whatever physical defects exist should be definitely recognized and charted, however; and wherever possible, definitely attacked. Certain of them will disappear spontaneously, as the malnutrition itself is combated.

At the risk of being charged with needless repetition, it seems wise to head our list of physical defects with a recapitulation of the traits that go to make up the picture of fatigue so perfectly illustrated by the pictures in the first chapter (Figs. 1 and 2), and so constantly seen in greater or less extent in all marked cases. Tired, stooping posture, relaxed musculature, flat-chest, prominent *anguli scapulæ*, protuberant abdomen, knock-knees, and flat feet—these together with the tired expression are physical features that are quite certain to be present. They may be considered largely as results of malnutrition.

Probably the most frequently noted medical conditions presented by the malnourished boy

or girl are those connected with the nose and throat. These are so general, and their interpretation varies so with the individual who is making the examination, that it seems only fair to stop here a moment and consider just what the significance of "tonsils and adenoids" may be, in these cases. The diagnosis is so commonly made, and parents are so bombarded with appeals to have the tonsils and adenoids removed, that it seems as if we ought to be quite sure of our ground when we make this plea. Further than this many of us have been greatly embarrassed by the failure to gain after operation that sometimes belies all our promises, and makes us wonder whether too much emphasis has not been placed upon this operation as a cure-all for the ills of the undernourished child.

It is well here to recall the work of Dr. A. D. Kaiser,¹ pediatricist to the Eastman Dental Infirmary, Rochester, New York, who traced the after histories of a thousand operated cases, and contrasted them with those of the same number of children in whose cases the operation had been equally urged, but had been re-

¹ See note at end of this chapter.

fused by their parents. It is not the place here to give the detailed results; but the outstanding fact of the study was the very moderate improvement shown by the after-histories of the operated, as compared with those of the unoperated. Such a study must make us a little less confident, when we urge upon parents the wholesale removal of tonsils and adenoids. We must remember that any operation which does not leave a child distinctly better off than he would have been without it, is a bad operation, no matter how beautiful may have been the technique displayed, or how good-looking the field, or how complete the extirpation of the undesired tissue.

The loss of blood, the psychic shock to the emotional life of the child, the expense of the operation to the parents, the risk (slight though it be) of the anesthetic and of the inhalation of blood (lung abscess following tonsillectomy is by no means as rare as we would like to believe it)—all have to be weighed in making the decision for or against operation in these cases. The fairest way to evaluate the tonsil, as well as the adenoid mass, and the powers for evil exerted by them in each case

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under discussion, is to judge them mainly not by their looks but by their actions, past and present. The obstructive adenoid mass that causes mouth breathing, dull heavy expression, discharging nose, and frequent colds, had better be removed. Tonsils that are so huge as to be mechanically obstructive, or so scarred or so succulent as to cause one to suspect them of being actually pus factories; or that present a history of frequent and repeated inflammation either as simple follicular tonsillitis or as "quinsey sore throat," had likewise better be done away with, even though small. On the other hand, examination a year later of a throat that we have felt should unquestionably be subjected to operation, so frequently shows an apparently healthy naso-pharynx, that we are compelled in common honesty to be very careful how we urge removal in all cases as the only possible cure of conditions that Mother Nature so frequently seems to take care of for herself!

Associated with these naso-pharyngeal defects, one is quite likely to find a certain amount of deafness. This may be due to the size of the adenoid mass, in which case the removal of this together with the tonsils may

clear up the deafness entirely. Another condition not infrequently encountered, often sufficient to cause mechanical deafness from its situation, is an extra free secretion of the brown-yellow "wax" which varies so in quantity in different individuals. When this is present in sufficient quantity to block the auditory canal, it is bound to interfere mechanically with hearing. When it becomes dried and hard, it may cause a more serious condition of deafness due to the irritation of its presence against the ear-drum. At times deafness may be due to more serious causes. In any case, examination of these children is incomplete until the condition of the ears has been gone into thoroughly.

Uncorrected eye strain, often undetected and usually even unsuspected, is far more frequently operative in these cases than is commonly recognized. Headache may call attention to this; palpable near-sightedness may make itself evident in the child's inability to see the blackboard or to read from his school-book without effort. But more commonly eye-strain is unrecognized, especially if the fault is astigmatism rather than either far- or near-

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sightedness. It is probably not going a bit too far, to say that every child is entitled to a complete refraction, or eye examination, before he reaches the age of adolescence. If this were to be made a general rule, many cases of preventable eye strain, headache, educational retardation, and malnutrition would be automatically eliminated. And this refraction should unquestionably be made with the eye relaxed by the action of atropine. Without such complete relaxation, entirely erroneous conclusions may be arrived at, with results that, needless to say, may be highly tragic.

A case in point may make the reason for this more clear. A child who had been suspected of defective eyesight, although he had not given unmistakable evidence of it, was examined by an oculist who did not consider it necessary to relax the eye with atropine. The result of his examination was a diagnosis of near-sightedness, and glasses were prescribed for this. Some time later, a second examination was made, this time by a man who employed homatropine, a drug which relaxes the muscles of accommodation in an hour or so, and wears off in a day or so. Hence it is

not so disagreeable to use as atropine, which requires the instillation of a drop three times a day for a week before relaxation is complete; and then requires almost as much more time, before the eye is normal again. The second examination revealed a condition of *far-sightedness*, and the glasses were accordingly changed. When the second glasses failed to produce the hoped-for improvement, a third oculist was consulted. This man, in order to avoid all error, used the less agreeable atropine process; and to everyone's surprise, discovered a degree of far-sightedness exactly three times as great as had been elicited by the homatropine test! For this reason, the complete atropine examination, with all its temporary inconvenience, seems well worth making.

It seems hard to believe that parents would ever hesitate about allowing a child who had been found to have eye strain, to wear correcting glasses. Such however is by no means unusual. It is sometimes only after the utmost efforts have been put forth, that a parent,—and strange to say, fathers are the worst offenders here,—will give in, and consent to his child's wearing what is so commonly consid-

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ered a badge of inferiority. Needless to say, it would be hard to conceive of a crueler thing than to deprive a youngster who needs them, of the aid of glasses.

A competent authority has insisted that in his experience the presence of carious teeth is probably *not* a cause of malnutrition. It would be hard to prove or to disprove this statement; though it is easy to see that there is a great difference in the importance of the rôle played by the deeply rooted permanent teeth, and the shallow, almost rootless little temporary teeth of the child. There is unquestionably a shocking number of carious teeth among the school children of America; and whether or not these cavities cause malnutrition directly, there should be a definite effort made to correct this condition, which is unquestionably worse in degree in malnourished than in normal children. This should be made a recognized part of every nutrition effort, whether in private or in dispensary practice.

As certain diseases are characterized by the appearance of a condition of malnutrition, it is very important that their presence be looked for carefully by the physician, in examining

one of these children. Both syphilis and tuberculosis produce marked degrees of malnutrition; which is only a further reason for the statement that this work should not be undertaken without direct medical participation. If either of these two conditions is present, it should be detected by careful physical examination. Blood and spinal Wassermann examinations may be necessary, and the luetin test may be suggestive, for the detection of syphilis. Physical examination is much more helpful than the employment of the tuberculin test of von Pirquet, in the case of tuberculosis. Cardiac disease very commonly causes malnutrition of a marked degree, as does also diabetes. The routine examination of the urine of every case is the only way of detecting these youthful diabetics. Examination of the heart will, of course, bring any cardiac defects to light. Anemia, strange to say, cannot usually be detected in these youngsters by an examination of the hemoglobin content of the blood. This is as a rule normal, even though many of them are markedly pale and "pasty" looking.

Mental retardation, though not logically included under the head of "physical defects,"

is unquestionably a cause of malnutrition, sometimes to quite a marked degree. It may be suspected by unsatisfactory progress in school, dull or stupid expression, and in similar ways. (See Chapter XV: Mentality and Malnutrition.) It is only fair to those children, however, in whom mental defect is suspected, to rule out both faulty eyesight and imperfect hearing, either of which may cause a mistaken diagnosis of retardation, which may work a great hardship to a child. Hearing may be tested by comparing the distance at which the child can hear the ticking of a watch, with the distance at which the examiner can hear it. The child should of course be blindfolded during the testing. A rough estimation by the Binet-Simon, or any other of the simpler tests such as the Terman modification, will be very valuable here. However, such a test cannot be considered as final unless given by someone who is specially trained both in the technique, and in the evaluation of results. A child suspected of mental retardation should be placed in proper hands for a real study of his case.

What about the removal of physical de-

fects? Should we proceed to this at once? Or should they be attacked in the course of the rest of the treatment? My own practice used to be to try at once to get the children "free to gain," as the condition is called when all remedial defects have been corrected. Now, however, it has been found wiser to proceed at once with the general regulation of habits, establishment of proper routine, elimination of faulty food and health habits and educational and emotional strain, etc. The correction of physical defects is obtained as rapidly as these become possible, and as a knowledge of the child and experience with him dictate. Eye strain cannot be corrected too soon, of course; but a wise delay about tonsillectomy may be indicated in certain cases, where immediate operation might set things back, instead of expediting the cure. Each child and each physical defect must be judged by itself.

One word as to the removal of tonsils and adenoids, if this is decided upon. It goes without saying that such removal should be as complete as may be; but if an operator finds that in order to do this work thoroughly

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he must take a long time, and keep the child under an anesthetic for a prolonged period, he had better in all fairness limit his sphere of activity to adults. The quicker the operation and the shorter the time under the anesthetic, the better for the child. For this reason the Sluder, or some good modification of it, is the operation of choice.

One other point should be made here. If the custom is made of confining these children to bed for *at least five days after the operation*, instead of letting them get up out of bed and stagger about the following day, as is so often done, the results will be found far more satisfactory. Such early getting up after operation may cause the loss of several pounds, which might have been avoided by prolonging the convalescence by a few days.

The decision with regard to decayed temporary, deciduous, "milk" or "baby" teeth,—when to remove them and when to treat them without extraction, in order that they may "hold the space" for the permanent or second teeth that are to follow them,—is often a point to be very carefully weighed. Which of these courses is to be pursued may

safely be left to the dentist to decide, if he is one of those men who are conscientious enough to be swayed, not by their dislike of hurting a child, but only by the child's best interests. Such a dentist, if he decides that it is imperative that the tooth be left to hold the space for the permanent tooth, will see to it that the decayed cavity is treated in such a way that further decay is hindered, and severe aching is prevented. Both of these are important; and neither should be neglected, in deciding upon what is to be done to the teeth of a child suffering from malnutrition, or, for that matter, of one not so situated.

A far more serious matter is involved, in the decision as to when, or whether, orthodontal work (correction of faulty shape of the jaws, and incorrect position of the teeth) should be done for a child suffering with malnutrition. The strain involved is severe in any case; so much so, that some of the best schools refuse to take as a pupil a child who is undergoing orthodontal correction, as they feel sure that satisfactory school work cannot be done without undue strain. On the other hand, improper mastication from the result

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of faulty closure, or "bite," may cry aloud for correction, as otherwise the malnutrition resultant from the poor chewing cannot be expected to clear up. In any event, the child who must be subjected to orthodontal work, had better have specially light school tasks as long as he is undergoing treatment.

The correction of the faulty posture that is both a cause and a result of malnutrition, will be taken up in the Chapter XIV: Posture.

EFFECT OF TONSILLECTOMY ON THE GENERAL HEALTH OF TWELVE HUNDRED CHILDREN

AS COMPARED WITH AN EQUAL NUMBER NOT OPERATED ON ¹

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The operation for the removal of tonsils and adenoids has become such a common one that it is no longer restricted to cases in which the tonsils are obviously dis-

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eased. A so-called prophylactic tonsillectomy is now generally performed, so that the indications for the removal of these organs need not be very definite. The popularity of this procedure has given hope that all sorts of ills may be prevented. Because of the widespread interest in this operation, it is of importance to endeavor to estimate its value on the ultimate health of the child. There is today considerable difference of opinion as to what constitutes a just cause for the removal of the tonsils and adenoids. The divergent views, however, are not on the extreme cases, for it is usually conceded that an operation removing a diseased focus will bring about a favorable result and be of permanent benefit to the child. In the vast majority of children, however, the indication for operation is not so positive, and it is this great average group in which the end-results are particularly of interest. Are these children permanently benefited by the operation? is an honest question.

The real value of the operation can be determined only by repeated examinations of the children before operation and at stated intervals after the operation. They must be compared with children during the same periods who were not operated on, but in whom the indications for tonsillectomy were the same as in those operated on. Such a study has been made to show what the operation has done for 1,200 children contrasted with an equal number who were not operated on.

Two years ago, 5,000 children operated on one year before were re-examined. The results of these exami-

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nations over the one year period were most encouraging as compared to the years previous to operation. This year a smaller group, but representing a cross section of the large number operated on, was examined three years after operation. Careful histories were taken from the parents of these children, and a thorough examination was given them. Special attention was focused on the heart condition, the glands of the neck, the throat, the teeth and the adjacent sinuses. In order to have honest controls, other children were examined in whom the recommendation for tonsillectomy had been made three years before, but no consent had been obtained and hence the children had not been operated on. There was a definite cause for operation in both groups and, as accurately as one can judge, the indications for operation were about the same. In order to measure the effect of the operation on the child three years later, three factors were considered: (1) the presence or absence of subjective symptoms referable to the throat; (2) the incidence of infections, and (3) the state of nutrition. With this information on a group of children that had been operated on, and like information on an equal number of children that had not been operated on, conclusions that are of some value can be drawn.

CONCLUSIONS

After a review of these data, one can attempt to draw some conclusions as to the value of tonsillectomy, but must not be unmindful of the dangers of the surgical

procedure as well as the complications that do occur. *One is at once impressed with the absence of any spectacular results when a group is studied controlled by a group not operated on. The striking improvement that is often witnessed in a child's general health following this operation fails to be so evident in a group in which selection is not made.*

The desirability and justification of this operation depend on the ultimate effect on the child. Many years must elapse before the ultimate effect can be determined; but, after a period of three years, a group of 1,200 children operated on compared to an equal number of similar children in whom operation was refused leads one to conclude that:

1. Tonsillectomy offers a child considerable relief from such common complaints as sore throat, head colds and mouth breathing.

2. It lessens the chances of having discharging ears and their complications.

3. It assures some protection against glandular infection, but is no guarantee against it, and it does not assure the immediate disappearance of large cervical glands.

4. It does not influence favorably or unfavorably infections of the larynx, bronchi and lungs, as they occur equally in the two groups.

5. It does not prevent scarlet fever or measles, but may influence the severity of the infections.

6. It seems to lessen the incidence of diphtheria by removing fertile soil for the diphtheria bacillus.

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7. It has not influenced the incidence of chorea or rheumatism.

8. It has shown a lessened incidence of heart disease over a period of three years.

9. It has somewhat reduced malnutrition in the group operated on as compared to the group that was not operated on, when other causes have been eliminated.

10. It lessens mouth breathing, 88.5 per cent cure in operated group, as compared with but 4.5 per cent spontaneous cure in unoperated group.

CHAPTER VIII

FATIGUE

THE GREATEST CAUSE OF ALL

THE thoughtful reader will have been conscious, all through the discussion of the various phases of our problem thus far, of a specter that has stalked in the background, occasionally coming out into the open, but always present. This specter is fatigue. When all has been said and done, much of the problem of malnutrition and the under par child will be found to simmer down to a question of fatigue, pure and simple. Just what is meant by fatigue? When is fatigue desirable, if ever? How does it harm? And how can its harmful effects be mitigated, if at all?

It is quite essential to draw a clear line between what may be termed desirable fatigue, healthy tiredness, or normal exhaustion well

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this side of complete prostration, on the one hand; and *overfatigue*, an exhaustion from which there is not the healthy, resilient "come-back" that is characteristic of buoyant youth, on the other. Fatigue, in this first sense, is what exercise should strive for; *overfatigue*, on the other hand, is of course quite the reverse. Overfatigue is the stretching of the elastic beyond the bounds of its elasticity,—leaving a strained, damaged organism instead of the healthily tired one that exercise should produce.

An example of normal, healthy fatigue was furnished recently by an intensely absorbed child, of 4 years, noticed by a psychiatrist visiting a nursery school. So intent was she upon the self-imposed task which was absorbing her whole interest, that the observer was interested to wait and see how she would react when the task was finished, and her interest was terminated. He rather expected that after such close concentration of all the bodily senses, there would ensue a period of disorganized emotional storm. Great was his surprise, when the moment came for the termination of the absorbed interest, to observe a picture

closely akin to that of a person just awakening from a relaxing, resting sleep, rather than what one might have expected to find following such apparently exhausting concentration. The child relaxed, stretched, raising her arms above her head in the languorous, enjoyable way that one does upon awakening from refreshing slumber; and in every way appeared to be a rested, rather than an exhausted, individual. The lesson is very plain. Complete absorption in a task of our own selection that enlists our complete attention and voluntary interest,—if indeed interest can ever be anything but voluntary,—is *not* tiring, but restful. As the poet said so many years ago,

“Rest is not quitting this busy career;
Rest is the fitting of self for one’s sphere.”

or, as Carlyle so truly phrased the same idea,—“Happy is the man who has found his work; he can ask no greater blessing.”

Needless to say, the term “fatigue,” as used in this chapter, is to be construed as meaning, not this satisfying fatigue, but the *overfatigue* from which there is no such desirable reaction,

—nothing but the harmful exhaustion which is not recreative, but destructive.

It is a well-recognized principle of mechanics that every machine is designed for a certain definite load; and that the nearer its actual load approximates this ideal or optimum load, the more nearly perfectly will it function. If the load is much too light, there is a waste of power from the "over-sizing." If the load is too heavy, there is a straining in order to carry it, that is harmful to the engine.

The same principle applies in the case of the human machine, which works best when called upon to do its optimum work, which is neither a lazy man's job, nor a two-man task. It is the duty of the educator, of the physician, of the parent, to find out as nearly as possible just what this optimum load is, for the boy or girl in question; and then to see to it that all of this load, but no excess, is given the child to carry.

But another principle of mechanics must be invoked here, if the child is to be enabled to carry this optimum load. The power generated by a machine cannot, unfortunately, all be applied to performing the work for which

it was designed. A certain variable amount of this power is dissipated in what is known as friction,—i.e., as work that is not productive of useful results at all, but is absorbed in the action and interaction of certain parts of the machine upon others. If friction could be completely eliminated, the greatest problem in mechanics would be in a fair way to being solved. Although we cannot eliminate friction completely, we can reduce it to a minimum by efficient lubrication. Many a machine which is utterly unable to do its work because of defective lubrication, becomes at once efficient again, when the proper lubrication has diverted the power used up in friction, and turned it back into the channels of useful work again.

Thus it is with the child and his load. The optimum load that he can carry becomes seriously diminished with every one of the causes of malnutrition that have been enumerated in the preceding chapters in which these causes were considered in detail. It is the task of those elders in whose care the child is placed, to study his environmental conditions carefully, conscientiously, and capably, to the end that they may eliminate every element of

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friction, and so leave the child free to apply all the power that he is generating, by the organism which is himself, to the task of living efficiently. For this task of efficient living *is* his optimum load.

To change the figure for a moment, the physical and emotional equipment of the child is singularly like the financial status of any one of us who has a personal account in a bank or trust company. Even those whose acquaintance with the principles of finance is most elementary, are perfectly cognizant of the fact that the amount put into the bank must be at least as great as the amount that can be drawn out. Failure on our part to remember this obvious fact has been the cause of embarrassing moments, when the mail has brought an ominous colored slip from the teller, reminding us that we have overdrawn our account, and that it behooves us to cover the overdraft by renewed deposits. It would be no kindness on the part of the bank to neglect to send us this notice. A time of reckoning would come sooner or later; and deferring this until some time which might find us more seriously embarrassed, and per-

haps unable to balance our account by increasing our deposits, might be the means of ruining us financially.

Thus it is with the child. He can draw out no more from Nature's bank than he has deposited therein. And his account must be balanced, even though Nature is not infrequently more cruel in her willingness to extend a temporary credit than our imagined teller might be,—though no real teller ever is! Nature's overdrafts have to be paid in full; and the mere fact that she is often inexcusably lax in commencing her collections, is no reason for hoping that she will rebate one jot or one tittle of the full amount due her, in the last accounting.

The appearance of the symptoms of malnutrition in a child constitutes just such a notice of overdraft of his physical, mental and emotional resources.

Two courses are open to the unfortunate soul who finds himself in receipt of such an unwelcome notice of overdraft from an inconsiderate and unsympathetic bank official. He may,—if he can!—make increased deposits; in which case he is in a position to make

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light of the matter. If he cannot do this, at least he can,—nay, he must!—call a halt to his expenditures, until such time as renewed credits of some sort have placed him in a position of solvency, when he can again draw upon the bank for funds to supply his needs.

Similarly in the case of the child, two courses are open to him when he has come perilously near to overdrawing his physical account. He can either *increase* his assets by deposits in the form of food, fresh air, sleep, satisfactory and interesting work; or he can in some way or other *decrease* his checks against his balance. Just how this latter is to be done, constitutes the problem of living, for the child whose rebuilding is the subject of our discussion; and the problem of education and discipline, for the elders who have his life in their hands.

Roughly speaking, there are two ways in which we may proceed to cut down the output of such a child. The first is to minimize his useful work,—the necessary work of the human machine, to change the figure back again from the world of finance to that of mechanics. This can be done by increasing his hours of

sleep and of rest; and thus, by decreasing the time for doing work, curtailing the amount of effort that he must expend in accomplishing it. Longer hours of sleep at night; the institution of nap periods, or at least of rest periods in the middle of the morning or afternoon, or both; delayed rising in the morning; spending half the day in bed; even prolonged rest in bed for days or, at times, for weeks; any of these measures, increasing in severity in the order stated, may need to be employed to bring about this end.

The other alternative is to decrease or eliminate as many as possible of the sources of friction under which he is laboring in carrying on his job of living. The main classes or groups into which these sources of friction fall, have been considered at some length; though it may not readily be recognized just why the name "friction" should be applied, for instance, to a physical defect; or to a faulty food habit; or to an unhappy family situation. An example drawn from our own adult life may make clearer the validity of such a characterization.

A person sits down to the task of holding a

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business conference, writing a letter, or reading a text-book. The task is one that he can easily perform, with the satisfaction that goes with successful accomplishment. Let him however get so much as a microscopic fragment of grit in his eye; let him, supposing he is in the habit of wearing glasses, have broken or mislaid these glasses; or let him sit facing a dazzling light. What happens? The physical, mental, and emotional force that was there in abundance for the accomplishment of the useful work, is now totally inadequate; and the work that before was easy and pleasant becomes possible only at the cost of severe physical and emotional strain. What is the reason for the difference? An element of friction has been introduced; part of the interest and attention have perforce been diverted to this unproductive end; and what is left is hopelessly inadequate for the accomplishment of what was easy, before the element of friction entered in.

A similar result can be confidently expected, if for one of these sources of physical strain there is substituted some form of emotional strain. This may be bad news from

home, a quarrel with a loved one, or over-fatigue from previous concentration to the point of exhaustion, perhaps on some task similar to the one in hand. Anything that exacts interest and attention without the accomplishment of useful results, acts upon either adult or child exactly as does friction upon a machine,—it reduces efficiency, and renders harmonious, effective action impossible.

CHAPTER IX

THE NUTRITION CLASS IDEA

ITS HISTORY AND PURPOSE

THUS far, the whole of our consideration of the problem of the great American school disease, malnutrition, has had to do with the disease itself,—its causes, its symptoms, its signs, its diagnosis, and the far-reaching results to which it gives rise. It remains for us to consider the treatment of the disease; for if there were no recognized treatment, offering reasonable hope for a cure, its study would be a matter of academic interest for us, rather than the practical, engrossing theme that it is, with its special appeal to doctors, nurses, teachers, and parents.

Fortunately, just such a treatment is available for use today,—recognized by all who

have used it as adequate, simple, and speedy. So true is this, that it is hardly possible to conceive of any worker with children sick or well, in any capacity whatsoever, willing to go on with his task or being permitted to do so, without having a working knowledge of this treatment. The fact that there are so many children's workers,—including parents, the most numerous of all the workers with children,—who have not yet been made acquainted with the details of this technique, and yet who would welcome the opportunity of becoming conversant with it, justifies the writing of this book.

In just this connection, it may not be altogether out of place to say a word as to the history of the recognition of the disease as a separate "clinical entity,"—for out of this grew the method of treatment to be detailed below. It was first brought to the attention of the people of Britain toward the end of the century just closed, as a result of the following fact. In the recruiting that took place for the British expeditionary force that was to fight the Boer War, it was found that three out of five of the applicants had to be rejected

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on the grounds of physical unfitness. And much of this physical unfitness was of a kind that might easily have been prevented by a little care and attention during childhood. This matter constituted such a serious blow to the pride of the "tight little island," that a commission was appointed to study and search out the cause. The result of this study was the diagnosis, "malnutrition in childhood."

Only a short while thereafter, Doctor Wm. R. P. Emerson, professor of pediatrics at Tufts College Medical School, Boston, became seriously concerned over this same phenomenon as evidenced by the school children in his city,—a peacetime rather than a wartime problem. He had come to realize, just as every worker with children does, that there are certain children who drift from one doctor, hospital, or clinic, to another, presenting no very definite medical symptoms or signs, getting therefore no very definite treatment, and bobbing up as habitual "floaters" or "rounders," with an immense loss of time to themselves, to the community, and to the medical agencies that never cure them. Such diagnoses as "anemia," "underweight," "nervousness," "as-

thenia," and a dozen other more or less descriptive terms, appear on their record cards or hospital histories. Occasionally the notation "improved" may be observed; but "cured" is noticeable by its absence! It seemed to him that a complete study of these individuals, or of a group of them selected for the purpose, might lead to some plan for a better handling of the problem they presented.

He found after long study that, hand in hand with an insufficiency of food during childhood, went all sorts of faulty health habits, as well as various uncorrected but perfectly easily removable physical defects. These have been gone into in much detail in previous chapters. A practical demonstration of the accuracy of his findings and conclusions, on a huge scale, was supplied by the experience of this country during the Great War. Here an unexpectedly and humiliatingly large proportion of what we had supposed was the "flower of our young manhood" were revealed as physically unfit by the working out of the draft or, as it was euphemistically called, the selective service. The fact that the "selection" involved proved so necessary, was a severe set-back to

our national pride; and gave an added impetus to the work of Emerson, and, in New York City, to that of Doctor Charles Hendee Smith, of Bellevue, who had been working along similar lines.

When it came to dealing with these cases, it was found that a leaf could very profitably be taken from the book of the workers in the tuberculosis field. They had already found, following the pioneer work in class treatment by Launcelot Minor, of Asheville, that they could not only greatly conserve the workers' time but as well improve the patients' morale and optimism, by grouping patients. Classes of fifteen or twenty were formed, for instruction in proper diet and daily regimen, periodical weighing, and in general giving the attention in the way of "follow-up" care that any long-drawn-out, chronic condition demands for its successful handling. Similar health classes had been employed in connection with the "Emanuel Movement" in Boston. In adapting this principle of class or group instruction to what has become nationally and even internationally known as the "Nutrition Class Move-

ment," Emerson preceded the period of class instruction by two very important features. These were the history taking and the making of the physical examination. Nothing new in either of these, anyone familiar with medical procedure in general may remark. Quite true. But each of these was conducted in a way that makes it eminently worth our detailed consideration.

The mother who has read thus far, hoping to learn how to attack the problem of treating and curing her under par child, may feel a degree of disappointment when, instead of learning what she can do about it, she is asked to read a chapter or two about the hospital or dispensary treatment of the disease in the nutrition class. Especially is this likely to be the case, if she is so situated that it is absolutely impossible for her ever to come within miles, or for the matter of that within hundreds of miles, of a nutrition class.

The reason for treating the subject in this order, however, is perfectly simple. Much of the machinery that has been found so eminently successful in the cure of malnutrition in the nutrition class, can be extemporized

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in the home, and used there with every bit as much success as attends the class treatment. In order to understand just how this may be done, however, it is essential that the mother and the doctor who intend doing this in the home, be familiar with the routine used in the class. Further than this, a thorough understanding of the reasons underlying the various details of this routine, will make it far more interesting when the time comes for applying them in the case of the single child in the home. Many suggestions will arise in the mind of the interested mother who reads about the development of the class method for the treatment of malnutrition; and she may easily improve upon some of the methods that have been used, and improvise distinct advances which will prove most helpful with her individual problem.

With this apology, or rather justification, for apparently turning aside from the discussion of most interest to the parents of the undernourished child, let us take up the consideration of some of the fundamental principles underlying the class method.

First, the history. Instead of having this

taken by the physician in charge, or even by the nurse, an innovation was introduced that has proved indispensable in the maintenance of these classes. Begun as a war measure, it has been continued because of the plain common-sense that characterized it. It will be remembered that during the war physicians were, for very obvious reasons, very hard to obtain. Even when they could be gotten, but very little of their time was available. The same thing, to a slightly less degree, was the case with trained nurses. Volunteer aides, on the other hand, were plentiful. Heads of hospitals were frequently hard put to it to find useful work for the many young women who offered themselves for part time volunteer work,—work that could be done without a great deal of preliminary training. It seemed a logical thing to train these intelligent young women to do the wholly routine clerical part of the record making and history taking in the nutrition class, thus setting free the technically trained physicians and nurses for work that required prolonged technical training and experience. It has been found that with the purely routine burdens of history-taking thus provided for,

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it has been possible to obtain the most valuable and minute histories of the lives of these children, and especially such usually slighted but intensely important features as their emotional lives, their mental backgrounds, their health- and play-habits, etc. These carefully elicited life stories, thus put at the disposal of the doctor by the efforts of the volunteer aides working under the direction and with the careful oversight of the trained nursing personnel, made possible a grasp of the essential details of these cases such as had never been dreamed of before. In addition these volunteer aides could be trained to measure and weigh the children accurately (as described in Chapter II), chart their findings, and give the individual credits that we shall have to deal with below. Still further, they proved very useful in giving to each child the amount of personal instruction, attention, and encouragement that has been found absolutely indispensable in getting results in these hitherto most refractory, obstinate cases,—an amount that is simply out of the question, if no one is available but the

overworked, undermanned hospital or clinic medical and nursing staff.

The doctor and the nurse, thus freed from the oppressive but indispensable routine work that could be done by others less highly trained, were now able to do something else that has always been stressed as indispensable,—and yet that any trained worker realizes is not obtainable in the vast majority of instances. This was the performance of a *complete* physical examination such as was described in Chapter VII. Such an examination was quite as searching in its questing into usually unconsidered physical defects, such for example as unsuspected eye strain, impaired hearing, etc., as the far-reaching history-taking had been in equally unusual directions. The results obtained whenever such routine complete physical examinations are made, is really astounding. And in no other way can such results be obtained. For the child whose malnutrition is due to eye-strain frequently gives no outward manifestation or indication of defective vision whatsoever. The child whose malnutrition comes

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from an undetected diabetes or latent tuberculosis cannot of course tell his examiner his trouble, for the reason that neither he nor either of his parents has the faintest notion of its existence. The same is true of many other of the causes of malnutrition that have been discussed elsewhere. This has been found to be the case as well with many of the faults of daily living that have been elicited by the careful history taking. Only when such errors in the daily life of the undernourished child can be brought out in the increased time available for their study by the employment of the volunteer aide, has it been possible to get the fullest and most satisfactory results from the machinery of the nutrition class.

The actual carrying on of a nutrition class is somewhat as follows. As new children come in, either directly or by way of other departments of the hospital or its outpatient clinic, they are interrogated as indicated above, such interrogation of course extending to the parent or guardian who accompanies them. The history is not considered complete until it has been rounded out by a visit to the home by the

social worker. After as much of the record has been filled out as can be done at this initial visit, the child is stripped, dressed in a "slip-over" such as was described in Chapter II, and weighed and measured. The actual weight is then compared with the table of desired weights for the age and height (Baldwin-Woods Tables, Figs. 7 and 8) presented; and the degree of underweight is charted, in both pounds and percentage, as described in very full detail in Chapter II. The child is then sent in to the doctor, for as much of the complete physical examination as he is equipped to perform; and arrangements are made for such special examination and tests, including eye, X-ray, urine, etc., as are desirable, but cannot be given by the examining physician.

In other words, as a result of this searching history taking, together with a complete physical examination from top to toe, the doctor is in possession of a body of facts far more extensive than would have been the case in any ordinary course of events,—and at the price of considerably less, rather than considerably more, time than he usually gives to the task of making a diagnosis. He is then in

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a position to evaluate all the conditions,—physical, mental, emotional, hereditary, environmental,—which go to make up the situation with which he has to deal. When once all these facts are before him, it ought not to be a matter of great difficulty for him to arrive at an *adequate* diagnosis of the cause of the child's malnutrition. And as adequate diagnosis is of course prerequisite to successful treatment, he is in position to set in motion the machinery that has to do with its cure. Just how this is done will be the subject of the next chapter.

Age _____ Grade _____

Normal Weight _____

Height _____

Underweight _____

Weight _____

Name _____

Per Cent. Underweight _____

Rest Periods	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Lunches																														
100 Calories																														
Tonics																														
Ad-Louds																														
Defective Teeth																														
Ten Coffee																														

Red Star means Daily Lunch

Blue Star means Daily Rest Period

Gold Star means Greatest Gain in Week

FIG. 25.—Wall Chart.

CHAPTER X

THE NUTRITION CLASS

ITS CONDUCT

IT may have been inferred from what has gone before, that there is usually *one cause* the operation of which has been responsible for the condition of malnutrition from which a child is suffering. The science of medicine would be far easier to teach, to learn, and to practice, were such "text-book" solutions of the problems it presents usually possible. Unfortunately, life is far from being such a simple affair as this. On the contrary, while it is by no means rare to find some one glaring fault operative in the case of a child under consideration, the correction of which seems a prerequisite to his return to normalcy, it is very common indeed to find that several of the causes that have been mentioned are at work producing the picture that

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the doctor is called upon to treat. For this reason, it has been found wise to subject every child to the general "preachments" and the rest of the machinery of the nutrition class, in addition to making whatever special efforts seem advisable for the correction of the particular faults that may have been discovered in his case. Just what is this general regimen, or class treatment?

When he becomes a member of the class, each child is given a large wall-chart, which is to contain his health and weight record for the time that he remains in attendance,—which should be until such time as he "goes over the top," as the attainment to the normal weight for age and height has been called. This chart (which is shown in ¹Fig. 25) is so large that any notation upon it is easily seen at some distance. On it is entered in large letters the child's name, age, grade in school, the date of his first weighing, and the estimated weight-for-age-and-height. In the first column, beginning at the left-hand side of the chart, his actual weight is charted,

¹May be obtained from "Nutrition Clinics, Inc.," Boston, Mass.

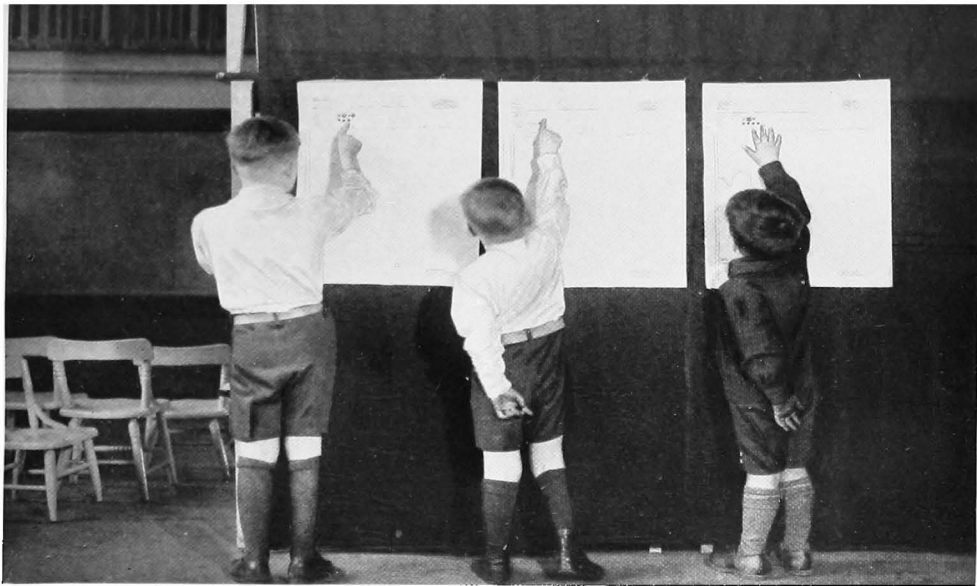


FIG. 26.—The record.

with the date in the small square at the top of this column. Above this, in the same column, is placed a dot to indicate his *desired* weight,—a graphic reminder to the child and to his fellows in the class of how much he has to gain in order to “go over the top.” Each week, upon coming to the class, the child’s weight is similarly taken, and charted in the next vacant column to the right of the last previous weight. By connecting these points or dots by means of straight lines, a “weight curve” is obtained, which tells with striking clearness how fast and how far the youngster is proceeding in his gain up to normal. As will be seen, the lines are rather far apart, each pound being represented by a distance of half an inch. In this way, even a slight increase is large enough, as recorded on his chart, to constitute a distinctly evident gain, to the youngster whose effort to do the things required of him is thus given recognition in the eyes of his peers. As all workers with children realize, praise is a far more potent instrument for obtaining results, than is blame, criticism, or censure. When it is remembered that many of these children come from homes where there

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is no sort of compulsion exercised over them, and that they may attend or not according to the dictates of their own sweet will, it will readily be seen that the successful nutrition worker will find honey a far more potent bait than vinegar.

After their weighing, which is done preceding the class conference by one of the volunteer aides, the children, each accompanied by his mother or father wherever possible, are assembled for the exercises of the morning. Before this, however, during or immediately after the weighing, the aide does her best to ascertain just how many of the things that have been urged upon the child and his parent, have been done during the preceding week; and notes these upon the record. It is, of course, essential to know this; for a lack of success, indicated by a failure to gain, can almost always be traced directly to a failure to comply with some request or suggestion made by the doctor, as a result of his study of the facts in his possession. If a child's poor condition is due largely to late hours, for example, it is obviously unreasonable to expect him to improve so long as his late retiring is persisted in.

If poor ventilation, eye strain, emotional stress, and general ill effects of cheap "movies" are at fault, it is confidently to be predicted that continued indulgence will be reflected in a stationary, if not an actually falling weight-curve. Further than this, it is obvious that substitution will not do. That is to say, if a child's ill health is due to the prolonged strain of the five or six hours' session of the ordinary school day, it is ridiculous to expect him to gain in weight as a result of having his tonsils removed,—no matter how enthusiastically such gain may have been promised by some irresponsible school examiner or over-zealous teacher. In fact, the wise school examiner has come to be most circumspect in "ordering" a tonsil operation, or any other operation, for that matter. For of course this is something that no school authority is empowered to "order." And even if it were, a wise school doctor would exercise the greatest care in promising a blanket list of improvements, such as we so often see held out as inducements to hesitating mothers, to bring about their consent to operations upon their children. If on the other hand a child is suffering from ab-

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sorption of toxins from infected tonsils, it need not be expected that shortening the school day, which is of such great benefit to the under-nourished child in general, will cure his malnutrition, even though it may very possibly cause some gain in weight, and improvement in symptoms.

It has been found decidedly worth while to recognize in some public way the accomplishment of any "health chore" that has been mastered during the preceding week. In order best to do this, the services of a variegated assortment of gummed stars, seals, and other emblems put out by the Dennison Paper Company are called in; and the ingenuity of the doctor and his helpers is taxed to the utmost to assign a significance to each of the colors, forms, sizes, etc., of the emblems used. Each of the distinctions gained is publicly affixed to the chart at the top of the column in which the week's gain is noted. This should be made the occasion for some little ceremony in the sight of the whole class. For instance, if a child has taken his daily rest period,—especially if he has succeeded in actually getting to sleep,—for all seven days of the week, he

may merit a silver star. If he has summoned up resolution enough to go to the dentist and have an aching molar put where it can no longer retard his gain by its constant irritation, a little waving American flag may be considered none too striking a token, in recognition of bravery far exceeding that required to charge the enemy's guns! The consumption of a quart of milk daily may "rate" a gold seal; while the successful daily ingestion of the much-hated spinach may more appropriately be signalized by a green star. Submitting to a tonsil and adenoid operation is frequently made the excuse for giving the child some little present that he especially desires; and no one who has passed through a similar ordeal will question that such a reward is merited by the victim. It is frequently astonishing to see the importance attached to these intrinsically worthless bits of paper by the earnest youngsters of a well-managed nutrition class. The nearest parallel that occurs to anyone who has had any army experience, is the equally great importance attached to the not greatly dissimilar bits of ribbon borne on the breast of many a much older

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person who has gladly gone through ordeals as trying as those sustained by the youngster who voluntarily abstains from candy, in order to obtain his tiny emblem of courage. After all, men are but children of a larger growth.

These charts are of course quite as easily used in the home as in the clinic; and the rewarding seals seem to be prized quite as highly, when used there.

It may be well to specify just here what has been found the most helpful regimen on which to place a child who has entered the nutrition class. This is of course in addition to the elimination of any of the faults that have been found to be operative in his particular case. The latter may easily be inferred from the various causes for malnutrition listed at length in chapters III to VII inclusive. While it is inevitable that different workers in such a wide field should place different individual emphasis upon different points in the regimen, the following is given as the one that has been most satisfactory in the experience of one large clinic, as well as in the private practise of the physician who was its chief.

1. Health habits. Sleeping with some ventilation directly from the outside air. Sleeping alone, with no bedfellow whatsoever. Hands washed before each meal, and upon retiring. Teeth brushed with individual tooth-brush; if possible after each meal, but in any event on arising and on retiring. As much time as possible in play out-of-doors, in direct sunshine. At least an hour of rest, which it is to be hoped may become an hour of sleep, immediately after the midday meal. The child should be alone in a darkened room, with clothes loosened and shoes removed, and without books or playthings.

2. Food habits. Absolutely no pressure from anyone as to *how much* the child shall eat; no conversation about food at the table; the meal to be over in twenty minutes, or thirty at the longest,—except in cases where “bolt-ing” the food has to be contended with. Nothing to be taken before the next meal. Meals to be five in number; the three main meals, breakfast, dinner, supper, at such times as prove most convenient for the family in general; two mid-meals, one in the morning and the other in the afternoon, each to be timed

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two-and-a-half, or better three, hours before the main meal that follows it.

So much for the method of the meals,—what about their content? Reversing a sound pedagogical principle, let us first say what the child shall *not* have. There is to be absolutely no sweet of any kind,—sugar (not even upon oatmeal!), syrup, honey, jelly, jam, preserves (even Grandma's own!) cake, pie, candy, sodas or other drugstore drinks,—the only exception allowed being simple puddings once a day for desert, including in this ice-cream, if obtained from a reliable source. What *shall* he be allowed?

(a) Milk,—the best obtainable. In the large cities, nothing but certified should be considered; if in a smaller community, milk from a dairy whose proprietor is known to be clean and conscientious. If the milk is rich, as such good milk is apt to be, two ounces or more had better be removed from the top and discarded, before mixing and giving to the child. Contrary to generally accepted opinion, an oversupply of cream, rich milk, and butter is detrimental to most children; though of course some butter is essential to good health.

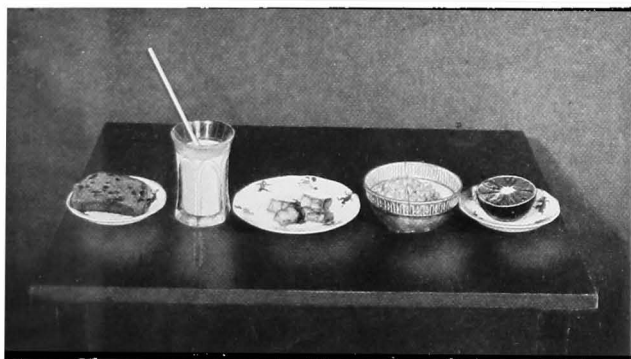


FIG. 18.—Breakfast.



FIG. 19.—Dinner.

(b.) Cereals,—the coarser brown cereals are always to be preferred. These are of course to be cooked, not those “ready to serve”; but prolonged cooking is undesirable, the time required for making them fit for adult consumption being quite sufficient.

(c.) Vegetables,—at least one “green” and one “starchy” a day. Among the “green,” remember that the leafy vegetables are the most valuable, while the rooty belong at the foot of the list.

(d.) Fruits,—the safest are oranges, apples cooked or raw, bananas only if thoroughly ripe, as shown by the change in the color of the skin from yellow to a golden brown, and stewed prunes. The rest, if given at all, had best be with the advice and consent of the doctor in charge.

(e.) Breads,—the whole grain, such as graham, whole wheat, corn, rye, etc. White flour products are probably as near worthless as anything could be.

(f.) Meats, — chicken, steak, lamb chop, bacon, if desired. Meat is of course not a necessary ingredient in the dietary of a growing child. As to the orthodox old hoax, beef juice,

—even when concocted by Grandma herself, who is fooled into believing that the globules of fat on the surface mean “richness” and “strength,”—it is not a nutritive substance at all, but rather a stimulant! Its best use is for giving a false sensation of fullness and satiety to the overweight child whose diet we wish to rob of its caloric value without making it seem unduly Spartanlike.

(g.) Eggs,—while not nearly so indispensable as we once thought them, they may be given, except to such children as seem distressed by them, in which case there is probably a protein sensitization to be considered. In such cases, it is worth while trying the yolk only; as the white is far more apt to be the offending member.

3. Emotional Life. Family strain. This must be corrected, along the lines of the faults hinted at in Chapter V.

4. School strain. As brought out more fully in Chapter VI, it has frequently been found almost useless to attempt to bring badly underpar children back to normal, so long as the long school day is persisted in. Three hours, from nine to twelve, is the longest school



FIG. 20.—Mid-morning or mid-afternoon lunch.

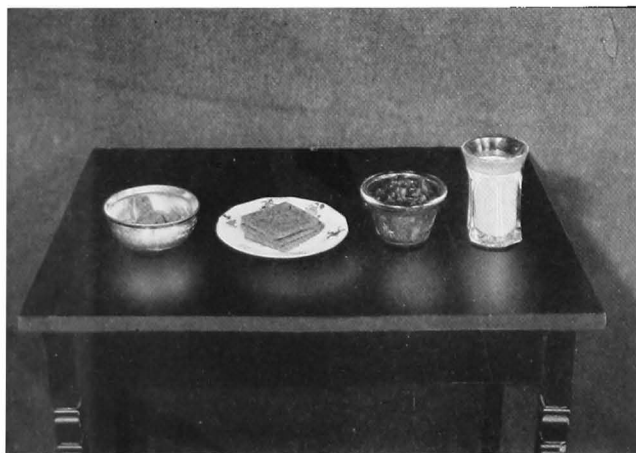


FIG. 21.—Supper.

day that should be tolerated for the child under 10,—some say, under 12. This must be broken by at least one recess, as well as by opportunity to partake of a light lunch. If this fails to produce a gain, school must be discontinued altogether for a term,—perhaps for a whole school year.

Such a daily regimen has been found almost unailing in its good results, when taken in connection with the correction of the specific faulty conditions found.

Just what should be given for a school lunch, is a question which may arise. If it is remembered that the position has been taken throughout this book that one three hour session is all that can safely be tolerated by the normal child under ten or eleven years of age, it will be realized that our undernourished child will not be subjected to the irregularities, uncertainties, and temptations that accompany the school noon-day lunch. These are apt to be serious, whether the lunch is brought from home, provided at school, or bought at a neighboring cafeteria, where, as is the case with most cafeterias, the desserts are temptingly displayed at the counter first passed by the

customer,—for perfectly obvious reasons! A hot unhurried lunch partaken of at home, followed by an hour's rest, is so nearly an essential in the case of these underweight children, that it seems almost a waste of time to attempt to cure them without providing it. It should not be difficult to persuade parents to consent to this, inasmuch as it causes the child no loss in scholarship; for, as has been shown at length in Chapter VI: School Strain, the shorter day is almost always a help to the scholarship of the child, as well as to his physical condition.

Another form of school lunch is sometimes provided, however; and this should be considered here, too. It has become almost a fad, of recent years, for schools to provide a glass of milk for each child, to be partaken of some time during the morning. While this seems to be, and of course in many cases is, a most desirable innovation, it is something to be most carefully watched, and most faithfully supervised. There are so many possibilities of harm lurking in the measure, while at the same time it commends itself so readily to the warm-hearted and benevolent in the community, that it deserves detailed analysis.

Just what are the harmful possibilities? They are many. In the first place, it is quite natural for the public in general to consider that "malnutrition," as evidenced by underweight, comes from too little food. If so, then of course it follows that all that is necessary is to provide additional food,—to wit, the glass of milk,—and all will be well. This faulty though perfectly understandable reasoning loses sight of all the rest of the program that has been studied so far; because it considers but one of the groups of causes, leaving out of consideration all the rest. Further than this, as cost is always something to be considered, it is quite customary to provide the cheapest grade of milk for this purpose. Some authorities would far prefer that a child have no milk at all at this time, than to have a glass of this poor stuff. If the time for the morning milk is as late as eleven o'clock, the appetite for the midday lunch, only an hour later, a hurried affair at best, is usually effectively killed. Instead of partaking of a hot lunch at home that he would have enjoyed, the child who has been given a glass of milk but an hour previously slights his warm home luncheon, be-

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cause his appetite has vanished. Many a child cannot drink a glass of milk to advantage, in the presence of a crowd of other youngsters, or under the forbidding eye of a teacher, kind enough perhaps, but intent upon getting this morning "chore" over and done with, and the regular work resumed. A child who is already taking a whole quart of milk at home, will probably be harmed rather than helped by the addition of another eight ounces of fluid; he will have no room for some more needed article of diet.

How can the morning milk be made valuable? First, it must be of the best grade procurable; certainly not inferior to the grade that the individual child is getting at home. Next, it must precede the following or midday meal by at least two and a half hours; which will in most instances mean its being served not later than ten o'clock. Then, there must be time enough provided that the milk may be sipped, not gulped; and it would certainly greatly enhance the benefit of the whole procedure, if a small cracker could be added, to encourage slower consumption of the milk. It would be a wise disposition of whatever time was re-

quired, to make a real function of the occasion, as is done in the nursery schools. Here the morning lunch is served by the children themselves to their fellows; and constitutes a very valuable break in the routine of the day. If the milk is served while the children are in their seats, rather than while they are downstairs on line or in the lunch-room, it is possible for them to have a short period of rest following, which is very desirable.

In some places it has been found desirable and feasible to give an orange instead of a glass of milk to each child. The increase in weight is said to compare favorably with that where the more usual custom of giving milk has been followed.

THE VALUE OF NUTRITION CLASSES TO THE UNDERNOURISHED CHILD

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In recent years, much stress has been placed on the importance of malnutrition on the health of the child. Physical defects, poor habits and improper home control have been assigned as causes of malnutrition. As

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a remedy, a so-called nutrition program has been outlined, which aims to correct these wrongs. The nutrition class has been introduced as one of these remedies.

In this study, malnutrition has been based on the height-weight relationship as compared with approved charts. Children with and without obvious physical defects were considered malnourished, provided they were more than 7 per cent under the normal as indicated by the table. It is conceded that malnutrition in its true meaning would include many children who measure up to the standard tables, but whose musculature shows every sign of poor nutrition, while so-called underweight children may have good musculature and be in excellent physical condition. With few exceptions, the scales determined in these children whether a child should be considered undernourished.

[Here follows description in detail of studies made.]

COMMENT

It is generally accepted that malnutrition in children, as determined by the height-weight relationship, is an undesirable condition. If this assertion is correct, efforts to improve the nutrition of a child are justifiable and desirable. The nutrition class has been introduced as a means of reaching this goal. The *immediate* results obtained in a class are most encouraging. The *ultimate* results are less encouraging, but are still better than in the groups in which no concentrated effort was made. The underlying cause of a child's poor nutrition is not always easily ascertained. The obvious thing may not

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be the cause. Based on an analysis of our material, remedial physical defects are a factor in only about 50 per cent of the children. The regulation of home conditions is an outstanding factor in promoting better nutrition. The greatest number of lasting gains were made in children in whom the importance of rest was stressed and heeded, longer sleeping hours and curtailed activities. The nutrition class was able to bring to the parents' attention the importance of this phase of the program. It is in this field that the class exerted its greatest influence on the rest of the grade and school. No other method of combating this problem has brought it so forcibly home to the parents as when they attend a class, and study the charts of the class with the nutrition worker or physician. The possible causes for failure to gain are mentioned, and the interested and sympathetic parent may be aided in adjusting the home program. On the other hand, the problem of malnutrition is not solved by the establishment of nutrition classes. In spite of the help given many children who attended the classes, new recruits are found each year, some of whom were well nourished a year before. The benefits of the class nutrition program must be given to all school children, in order to encourage the well nourished child to remain so. This method is now being adopted in the schools. The principles of the nutrition class are applied to the entire school and one class is conducted in the school for the extreme and problem cases. Whether the results gained by this combined method will be any better cannot be ascertained for several years.

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CONCLUSIONS

1. Nutrition classes, as introduced by Emerson, offer a way for children to receive instruction, which will cause an accelerated gain in about 80 per cent of the children enrolled.

2. Similar gains in equally poorly nourished children not in nutrition classes were made by 35 per cent of the children.

3. Gain in weight made by children in nutrition classes was not held as well as gains made by children in the control group, not in classes, at the end of a year.

4. Big initial gains made by children in the nutrition class reduced malnutrition in the class group 4.8 per cent. The gain made by control groups reduced malnutrition 3.1 per cent at the end of a year.

5. Nutrition classes have greater permanent benefit to the children who are more than 10 per cent underweight than for those only slightly underweight.

6. Physical defects do not necessarily bear a relation to the state of nutrition. The term "free to gain" if related to physical defects is misleading.

7. The best results in the nutrition class can be obtained if the parents cooperate in regulating the child's habits.

8. Nutrition classes have had a beneficial effect on other members of the school, for the teachings of the class have been carried by the pupils to their families and friends.

9. Nutrition classes have been the means of correct-

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ing many physical defects in children, from which the child will benefit, even though the nutrition was not brought to normal.

10. Nutrition classes have introduced a concrete and effective method of teaching health habits that have a wholesome value on a child, irrespective of the nutrition.

11. Nutrition classes alone are not likely to eradicate malnutrition. They are an aid to its correction.

12. Nutrition classes deserve an important place in the nutrition program of schools. The ultimate result shows that 45 per cent of the gain acquired during the class period is lost. But the 55 per cent permanent improvement is about one-third better than that made by similarly malnourished children who received only general health instruction, but who did not have the stimulation of the class.

CHAPTER XI

HOME TREATMENT

THE MOTHER AND THE PHYSICIAN

ALL of this discussion of malnutrition and the nutrition class, while interesting in an academic way, would be quite beside the point for the doctor, the nurse, the teacher, and the parent who have not access to a modern hospital, were it not for one very interesting thing. The observant reader who is accustomed to thinking one jump ahead of his author, may have already discovered this for himself. It is the very evident fact that there is nothing in this whole procedure, from the complete, all-embracing history-taking to the exhaustive physical examination reinforced by the special examinations of the eye and other special organs, the X-ray and laboratory examinations, etc., that cannot be done quite as readily and as well by the private phy-

sician in his office, whether he be general practitioner or specialist, as by that same physician acting as head of a nutrition class or clinic. The apparent exception,—the class feature,—is apparent only. For the doctor may do as one eminent pediatrician does, and gather his private patients together in groups at his office for instruction by the class method. Or he may get most of the stimulus of the class feature by employing the charts of other children of similar age and situation, for the single patient under consideration to pit himself against. As a matter of fact, it would be hard to find a doctor who has ever worked in a nutrition class, who has not adopted in his own private office practice much if not all of the procedure that he has found so effective in the nutrition class. There is no way of inducing a child to render the faithful attendance at the doctor's office that has been found a prerequisite to success in these obstinate cases, which can compare in effectiveness and successful results with what has been called "the Nutrition Class Regimen." Not until it has been adopted in whole or in part by a large number of the general practitioners and children's specialists

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throughout this country, as well as by the school authorities and the hospitals, can we hope even to keep pace with the cases already with us,—to say nothing of the hundreds of thousands that are being created every year as the oncoming yearly increments of children are started into a faulty educational hopper, and ground out and ground down by faulty living conditions at home and abroad.

It is not generally realized that, no matter how many schools and social agencies attack the problem of the undernourished child, they are hopelessly inadequate to cope with the situation,—for the reason that no matter how much they do for the cases already in existence, the newly developing cases continue to come on faster than these agencies can cure them. For this reason it is of paramount importance that every worker with children realize how easy, how fatally easy, it is for a child to slip over the border from good health into malnutrition, almost without his elders' taking cognizance of the change until it is an accomplished fact. The workers with children who are in the position to observe this change,—or, better still, to prevent it when it threatens,—are of course

first the parents, and then the family physicians. It should be considered an important part of the service that every doctor owes the families in his practice, to inform parents of this duty to their children. In no other way can a doctor so easily, so acceptably, and so successfully accomplish the task of educating parents and keeping children well above the danger zone of malnutrition, as by adopting some modification of the technique that has been advocated here. Parents have been found singularly open to suggestion and to instruction along these lines. The idea of preventive medicine is in the air; and people who might themselves fail to respond when their own health was the question to be considered, will frequently be the first to want all that preventive medicine has to offer for their children. In order to give them an adequate, satisfactory service, however, something definite, clearcut, and constructive must be outlined. The Nutrition Class regimen has been found to offer such a program.

CHAPTER XII

MALNUTRITION AND MEASURED FEEDING

THE 100-CALORIE PORTION

THERE has been so much chatter of late about measured feeding, caloric values, balanced ration, etc., that the doctor who "is not interested in dietetics," the nurse who is much more interested in the practical than in the theoretical side of her profession, the social worker whose preparation did not include much laboratory work, and the mother in the home, are all inclined to set these things down as either fads with which they have neither time nor inclination to bother, or else as really highly scientific matters which are not sufficiently simple and workable to be used in actual everyday practice.

Such an attitude is perfectly understandable; and, in view of the extremes to which

dietary enthusiasts have gone, and have tried to make the rest of us go with them, is quite excusable. It is however only fair to our patients for us to realize that, hidden away perhaps under much unnecessary verbiage, there is a great deal of value in diet regulation,—nay, much that is indispensable, if we would do the utmost in our power for the child whose nutrition is not all that it ought to be. It is for such practical folk in these four professions, that this chapter is written. And nothing will be said here that cannot be made of very direct benefit to the child who has constituted the object of our study together thus far.

First, as to measured feeding: why should feeding ever be measured? Is it necessary to set limits to the feeding of the average normal individual? And if so, what about the value of appetite, that has been so strenuously insisted upon throughout this book, as being a safe guide to quantities? The reason why it is necessary in the case of many individuals to measure their feeding, is that these individuals are *not* normal! Certainly, the little undernourished child, whose symptoms have been so often described here, is by no means

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normal. Nor is the great, overgrown, excessively fleshy boy or girl, by any means a normal individual. He is far overweight by any standards that could possibly be selected, whether those of science or of plain common sense. And although it has been repeatedly stated here that in many instances the cause of undernourishment is some form either of over-fatigue or else of physical defect, the plain fact remains to be stated and faced frankly, that many of these malnutrition children are what they are simply and solely because of the fact that their food intake, when thus measured, has been found to be quite insufficient to keep even an infant from losing weight. Conversely we find, whenever a similar measuring of the daily intake of an excessively fat child is made, that a huge overplus of food is being taken, above what is needed for the maintenance of weight, well-being, and proper growth. Naturally, then, it follows that we must have measured feeding. And we certainly cannot measure anything, unless we have a unit of measurement with which to make our calculations,—a something in terms of which to state our results. Such a unit of measurement, or

“norm,” for the estimation of food, has long been known to science, under the descriptive term, calorie.

The adjective “descriptive” is used advisedly; and it concedes at once the strength and the weakness of this calorie as a unit of food measurement. Those whose school or college Latin has “stuck,” will recognize in the word “calorie” a root that refers, not to food, or nutrition, or growth, but to heat! And why, say those who object to the practice of measuring feeding, should we measure *food* in terms of *heat*? The answer is quite simple,—because we have nothing better to use! Granted, that a common measure that expressed *growth* values, or one that carried some idea of *nutritive* values, would be far superior, as a measuring unit for estimating food, than one that refers to *heat*. But we have none; so that it is necessary for the person who objects to measuring food quantities in terms of heat-producing units, to suggest something better to use instead! So far, science and the objectors have failed us; so we must get along with what we have. And this heat-measuring unit is really not so bad, when once we

have recognized its very obvious limitations. For after all food does supply us with heat, both for use as such, and for conversion into other forms of energy, such as are required for growth, movement, etc. So that if we apply this unit of heat only to real food, and see to it that this food is clean, fresh, and well-supplied with vitamins, we shall find the calorie a pretty useful measuring rod, after all. It is but dodging the issue to apply it to such non-edible substances as coal oil, for instance, as has been done by opponents of the caloric hypothesis, in an effort to make the whole thing appear ridiculous.

It is essential that we remember one limitation, in dealing with calories. That is, that the calorie is a unit for adding, or if you prefer, for totalling, the various amounts of food taken. It is distinctly *not* a unit for comparison,—for deciding which of two foods is the better for a given purpose. For instance, if we are trying to increase the weight of a child, we shall naturally prefer two hundred calories to one hundred,—but only if the two hundred calories happen to be in the form of food that we know to be as valuable for him as the one

hundred calories that it is to replace. Thus, we cannot compare a hundred calories of milk with a hundred calories of any other food; for the reason that milk is an indispensable food, quite irrespective of the amount of calories it represents. At the opposite end of the scale comes some such inedible substance as coal oil, for instance, which was mentioned above. Our knowledge of food values tells us that coal oil is useless as a food; so we shall have none of it, no matter how many calories it may be worth. Again, leafy vegetables are better than rooty vegetables, from the standpoint of the vitamins that they contain; so that we shall not be tempted to substitute rooty for leafy vegetables, whatever the caloric value of some particular rooty vegetable might otherwise tempt us to do.

While comparisons are never quite fair, one may help us here. As it happens, we have no universal unit for measuring armies, or football teams, or populations, other than that of man power. At the same time, we realize perfectly that giving the number of men in an army, in an athletic group, or in a political division, tells disappointingly little about what

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that group is worth for any given task or purpose. Eleven high school freshmen have a "man-power,"—a "caloric worth" if you will,—almost twice as great as that of six players of an All-American football team; yet no one would compare the high school eleven, with their "subs" thrown in, for ball-carrying or line-bucking effectiveness with the six stars. These latter may well represent the vitamins, for instance. Similarly the three hundred Spartans at Thermopylæ could not be measured against the horde of their enemies in terms of man power. Three hundred against thirty odd thousand should spell defeat; but three hundred Spartans intent upon dying for their country possess an imponderable something that defies computation. And yet, we do not discard man power as a means of measuring the effectiveness of armies; we simply state our man power, with a mental reservation that men are not equal in effectiveness, nor are they replaceable by other men, except within certain limits. So foods, while they can be measured in calories, cannot be compared for effectiveness in terms of calories. We must learn about each food what we can; and then simply total

the intake for a given period in terms of calories.

For those who are interested in exact statements, it may be as well to remark here that a calorie is the amount of heat required to raise one pound of water four degrees Fahrenheit. If a certain quantity of a given food, when burned to ashes in an instrument specially designed for measuring the heat thus generated (called a "bomb calorimeter"), were found to raise one pound of water four degrees Fahrenheit in the process, it would thus have proved its caloric worth to be exactly one.

For practical purposes, however,—and those are all that concern us here, by our confession of faith at the start,—it has been found that such estimating of the value of foods actually taken, is quite unnecessary. There is a much simpler way to do this, and one that is quite accurate enough. This consists in comparing the amounts of different foods, that are consumed in a given twenty-four hours (expressed in ordinary household measures, and not in cumbersome, difficult-to-obtain weights and volumes), with the amounts of such foods

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known to contain one hundred calories. This is done with the help of what we refer to as a **ONE - HUNDRED - CALORIE - PORTION** table, which will be found appended to the present chapter. When "household measures" are spoken of, what is meant is nothing more elaborate in the way of measuring implements than what the ordinary table, set for an ordinary meal, would offer. For instance, very many of the portions are expressed in "heaping tablespoonfuls"; others are in glassfuls, or fractions thereof, such as half a glass of milk, two-thirds of a cup of cocoa. The number of items consumed, such as three graham crackers, or five prunes, may sometimes be cited.

Just how shall such a measurement of the daily food intake of a child be made? Nutrition workers have found that if a mother will jot down for two consecutive days the individual amount of each item of food taken at each meal, the average for these two days will constitute a fair average for a longer period, say a week, without recording the actual food consumption for every day of this longer period.

The only proviso necessary is that neither of the days chosen be a holiday, or other special occasion. The recording of the food intake for two days of each week is a very salutary measure, in more ways than one. It is valuable in interesting the child in what is being done, and in letting him see for himself how his total increases, or decreases, as the case may be. And it gives the doctor, the nurse, the nutrition worker, and the parent very valuable information as to what is going on. It is always wise to take the first forty-eight-hour record before any changes in the diet are suggested; in order that it may be known definitely just what the original diet was worth, before treatment was begun. Another advantage of such a course, is that it gives the doctor or nurse an idea of just what dietary fads and fancies, what likes and aversions, what idiosyncrasies and family food customs, it may be necessary to deal with. A blank that has been used, both for nutrition class work in a hospital dispensary, and in private practice as well, for a number of years, is here given as a suggestion for the use of others who may

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prefer to use a uniform record form for this procedure. (Fig. 27 for 48 Hour Record Form.)

The evaluating is simply and easily done, by the nutrition worker, nurse, mother, or volunteer aide. For instance, say that the record shows that the child had taken three heaping tablespoonfuls of oatmeal, with half a glassful of milk poured over it; a slice of bread and butter; and an orange; for his breakfast. Inasmuch as comparison with the hundred-calorie-portion table shows that as it takes 4 heaping tablespoonfuls of oatmeal to make one hundred calories, the amount he has taken (three heaping tablespoonfuls) equals $\frac{3}{4}$ of one hundred, or 75 calories. A glassful of milk (about seven and one-half ounces) is one and a half times the amount required to make a hundred calories ($\frac{2}{3}$ glassful of milk equals 100 calories); therefore half a glass will equal 75 calories. A slice of white bread is worth one hundred calories; while half a pat of butter (about what is required to spread a slice of bread) is worth half of one hundred calories, or fifty. One large orange is worth one hundred calories.

Total:

48-HOUR FOOD RECORD

DATE SENT.....

Name of Child
 Age.
 Weight:
 Previous Weight
 Height:
 Name of Parent:
 Home Address.
 Vacation Address

INSTRUCTIONS

FOR 2 WHOLE DAYS (48 HOURS) KEEP A LIST OF ALL FOOD TAKEN.
 GIVE EXACT AMOUNTS IN TABLESPOONFULS GLASSFULS OR
 NUMBER (AS OF PRUNES) ACTUALLY EATEN
 FILL IN ALL BLANK SPACES THEN MAIL
 OTHER SIDE MAY BE USED AS MEMORANDUM SHEET ON WHICH
 TO JOT DOWN QUESTIONS YOU WISH TO ASK OR CONDITIONS YOU
 WISH TO REPORT AS THEY OCCUR TO YOU DURING THE WEEK
 SEND IN A BLANK FILLED OUT COMPLETELY EVERY _____ WEEKS.

NO CANDY
 NO COFFEE TEA OR COCA-COLA
 NO FRIED FOOD
 NO JELLIES OR SWEET PRESERVES
 NO HOT BREAD
 NOTHING BETWEEN MEALS

DATE	First Day	Calories	Second Day	Calories
OUT OF BED at.....	..... o'clock		..... o'clock	
BREAKFAST at.....	..... o'clock		..... o'clock	
Fruit .....	.....		.....
Cereal .....	..... tbsp.		..... tbsp.	
Milk .....	..... glasses		..... glasses	
Bread and Butter .....	..... slices		..... slices	
BOWELS moved at.....	..... o'clock		..... o'clock	
MORNING LUNCH				
Crackers .....	.....		.....
Milk .....	..... glasses		..... glasses	
Fruit .....	.....		.....
SLEEP or rest	from..... to.....		from..... to.....	
DINNER at.....	..... o'clock		..... o'clock	
Potato or Rice .....	..... tbsp.		..... tbsp.	
Green Vegetable .....	..... tbsp.		..... tbsp.	
Milk .....	..... glasses		..... glasses	
Bread and Butter .....	..... slices		..... slices	
Dessert .....	..... tbsp.		..... tbsp.	
NAP or rest	from..... to.....		from..... to.....	
AFTERNOON LUNCH at.....	..... o'clock		..... o'clock	
Crackers .....	.....		.....
Milk .....	..... glasses		..... glasses	
Fruit .....	.....		.....
SUPPER at.....	..... o'clock		..... o'clock	
Cereal .....	..... tbsp.		..... tbsp.	
or Graham Crackers .....	.....		.....
Milk .....	..... glasses		..... glasses	
Stewed Fruit .....	.....		.....
Bread and Butter .....	..... slices		..... slices	
BED at.....	..... o'clock		..... o'clock	

FIG. 27.—48-hour food record.

- 3 Hp. tbsp. Oatmeal, 75 C.
- 1/2 Glassful Milk, 75c.
- 1 Slice Bread, 100 C.
- 1/2 Pat Butter, 50 C.
- 1 Large Orange, 100 C.

Total for Breakfast, 400 Calories.

A similar method of computing gives the caloric worth of the other meals. Adding these gives the total for the whole day. Adding the total of the first day to the total of the second, and dividing by two, gives the average for the two, which we have found constitutes a fair average for the week. Such an average makes a very fair basis for comparison with similar averages for succeeding weeks.

How can we increase the total daily intake? First, as previously recommended, by adding a mid-morning and a mid-afternoon luncheon. If these lunches are spaced at least three hours before the main meals immediately following (mid-morning lunch three hours before dinner, and mid-afternoon lunch three hours before supper), it will be found that instead of *taking away* the appetite for these larger meals, they actually *improve* it, by doing away with the faintness that may have been one of

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the causes for the previously poor appetite. Further than this, there is reason to believe that a given amount of food, taken in five installments, is worth more to the undernourished child than it would be if it were to be taken in but three. The second way in which the total daily intake can be appreciably increased, is by making a careful study of the various articles taken, as shown by the forty-eight-hour food record; and then substituting articles, similar in kind but higher in caloric value, for these articles that the child has been in the habit of eating. A study of the one-hundred-calorie-portion table will make this a simple matter. For instance, a slice of white bread is worth one hundred calories, while a slice of whole wheat bread is worth three hundred. It is therefore a simple matter to increase the caloric intake by two hundred, if a slice of whole wheat is substituted for the white bread that may have been customary. If this is done at each meal, six hundred calories will have been added to the daily total,—not to mention the manifest advantage of the vitamine-containing over the devitalized and devitaminized product.

A helping consisting of six heaping table-spoonfuls of hominy would be worth twice as much as one consisting of four tablespoonfuls of farina or cream of wheat; and could probably be substituted without much effort. Raisins added to cereals or puddings serve the double purpose of improving their attractiveness and raising their caloric value. Similar suggestions, but conversely applied, will be found in Chapter XIII: Nutrition and the Overweight Child. It is not a difficult matter to interest the youngster who has decided that it is worth his while to gain (and it is the ability to make the child see that it *is* worth his while to gain that constitutes the successful worker with children), in this question of the relative values of the different foods that he eats. The various ways in which the worker with undernourished children can make them decide that it is worth their while to gain in weight, have been gone into at length in another place, and so need not be recapitulated here.

A suggestive table of one-hundred-calorie portions follows, taken from Emerson's work.

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For those who desire a fuller list, either "Feeding the Family," by Mary Schwartz Rose, or Farmers' Bulletin 142 (by Atwater), may be consulted.

Fig. 26—TABLE OF ONE HUNDRED-CALORIE-PORTIONS

<i>Dairy Products</i>	Cantaloupe, $\frac{1}{2}$
Milk, $\frac{2}{3}$ glassful (about 5 ozs.)	Dates, 3 large
Butter, 1 pat	Figs, 1 large
Cheese, 1 cubic inch	Grape Fruit, $\frac{1}{2}$
Egg, 1 large	Orange, 1 large
	Orange Juice, $\frac{2}{3}$ glassful
	Raisins, 10 large
<i>Cereals</i>	<i>Vegetables</i>
Corn Flakes, 10 h tbsp	Asparagus, 20 stalks
Cream of Wheat, 4 h tbsp	Beans, Baked, 1 h tbsp
Farina, 4 h tbsp	Lima, 2 h tbsp
Grape Nuts, 2 h tbsp	String, 10 h tbsp
Hominy, 3 h tbsp	Beets, 6 h tbsp
Indian Meal, 3 h tbsp	Cabbage, 6 h tbsp
Oatmeal, 4 h tbsp	Carrots, 4 h tbsp
Rice, 4 h tbsp	Cauliflower, 24 h tbsp
Shredded Wheat, 1 biscuit	Celery, 1 bunch
	Corn, 2 h tbsp
<i>Fruits</i>	Lettuce, 2 large heads
Apple, 1 large	Onion, 4 h tbsp
Applesauce, 2 tbsp	Peas, Green, 4 h tbsp
Banana, 1 large	

Potato, Sweet, $\frac{1}{2}$ average

White, 1 average

Spinach, 4 h tbsp

Squash, 4 h tbsp

Succotash, 3 h tbsp

Tomatoes,

Canned, 12 h tbsp

Fresh, 4 average

Turnips, 6 h tbsp

Puddings

Apple Tapioca, 2 h tbsp

Bread, 1 h tbsp

Custard, 2 h tbsp

Indian, 1 h tbsp

Ice Cream, 1 h tbsp

Breads

Biscuit, 1

Corn Bread, 2" x 2" x 1"

Vienna Roll, 1

White Bread, 1 slice

Whole Wheat Bread, $\frac{1}{3}$

slice

Zwieback, 3 pieces

Crackers

Educator, 12

Graham, 2

Oatmeal, 7

Oyster, 26

Saltines, 6

Unneedas, 4

Meats

Bacon, 1 slice

Chicken, 2 ozs., or size of
2 chops

Dried Beef, 2 ozs.

Mutton (Boiled), "

Steak (Round), "

Lamb, "

Veal, "

Beef, Roast, 1 oz., or size
of 1 chop

Chop (Lamb), 1 oz.

Corned Beef, "

Mutton (Roast), "

Steak (Tend'l'n) "

Fish, 3 ozs.

Soups

Cream:

Asparagus, 4 ounces

Celery, 4 "

Corn, 3 "

Pea, 3 "

Tomato, $3\frac{1}{2}$ "

Thick:

Bean, 5 "

Chicken, 6 "

Split Pea, 6 "

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Meat Stew, 4 ounces	<i>Abbreviations</i>
Oyster Stew, 5 "	ts—teaspoonful
Clear: Bouillon, Con-	tbsp—tablespoonful
sommé, Vegetable, each	h—heaping
30 ounces	"—inches

How many calories a day should a growing child consume? This seems like a perfectly fair question, and one that should be susceptible of a simple answer. Actually, however, it is almost as hard to answer as another question often asked by intending purchasers of motor cars: How much will my gasoline cost me a month? Obviously, the gas consumption may vary anywhere from nothing up to a tidy little sum, depending entirely upon the use that is given the car, the distance run, the character of the roads, the weight of the load to be carried, the season of the year, and all sorts of non-predictable factors. For a similar reason, it seems almost absurd to try to state what should be the daily caloric intake of a child.

A far wiser way to use the daily record of calories, is to watch it from week to week, as a means of comparing, not what the child takes with what some other child takes, but what he takes at one time with what he takes at an-

other. If his weekly record shows a gain in intake, it encourages us. If an appreciable gain in intake is not paralleled by a gain in weight, we may have to look further for the cause of the underweight.

It is possible, however, to say in a general way that a child whose calories average around fourteen or sixteen hundred a day, will probably have to come up to two thousand, twenty-five hundred, or perhaps even three thousand, in order to bring his weight up to that expected for one of his age and height. Naturally, strenuous bodily exertion, or anything else that uses up heat, calls for more calories in the food, else they will be furnished by the body itself,—just as the racing Mississippi River boats were said at times to burn up their own superstructures, in order to supply fuel for their engines, when the usual supply had been exhausted! A general rule has been given of from 40 to 50 calories per pound of body weight per day; but this is the merest generalization only, as explained above.

CHAPTER XIII

NUTRITION AND THE OVER-WEIGHT CHILD

HOW AND WHEN TO REDUCE

WHAT is an overweight child? Or is there such a creature, anyway? If, as previously outlined in an earlier chapter, we determine what is the ideal weight for a child of a certain age and height, and then upon weighing him find that he is a few pounds over that weight, should we worry,—or should we feel pleased? If a child is palpably, grossly overweight,—“fat,” to be quite frank about it,—should he be made to reduce; or should he be left alone, and expected to “outgrow it,” as we are so often told that he will do, by doctors and amateur counsellors alike? Have we not often been told that a certain degree of overweight is good insurance for a child? And if a little

insurance is good, why is not a lot of insurance just that much better? What objection is there to overweight in a child, anyway? We know that the insurance companies have been responsible for the dictum that while overweight in an individual over thirty is bad, it is good in the individual under that age. So why worry over the condition of the boy or girl who is just beginning to be called "Fatty."

All these questions, and many others, are constantly being asked the doctor who takes the condition of his little patients seriously enough to be concerned about them and to offer advice to their parents, even before they become sick enough to "be taken to the doctor" for treatment,—in other words, who is interested in nutritional problems, and prepared to offer to parents the "keep-well service" that is coming to be considered one of the most important phases of the practise of medicine today. He must be in a position to answer these questions intelligently, if he is to render the service that is so eagerly desired by up-to-date parents all over our land. More still; he must be ready and willing to suggest them, tactfully and acceptably, in the case of such

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parents as are smugly satisfied with conditions in their children which call for careful investigation and expert appraisal, rather than for self-gratulation.

Before starting in to answer these questions, we must of course remember what was said about determining the ideal, or at least the average, weight for a child of a given height, age, and sex. For those who may have skipped this chapter, a very brief recapitulation of the procedure there described may be given here. We first take the height of the child, in inches, using for this either a specially made scale, or any simple home-made measuring device, such as may be improvised with a book, the door jamb, and an ordinary tape measure or yard stick. By consulting either the excellent tables prepared under the direction of Bird T. Baldwin, Ph. D., and Thos. D. Wood, M. D., and put out by the American Child Health Association for five cents a copy, or, for younger ages than are covered by these, the chart "Average Heights and Weights of Children under Six Years of Age," to be had by addressing the Children's Bureau, of the U. S. Department of Labor,

Washington, D. C., we find the average weight for a child of the age, height, and sex of the youngster under discussion. (Trite as it may seem to those who have not done this work, it may not be out of place to remind workers to use the girl's side of the weight card for girls, and the boy's side for boys; for any nutrition worker can recall instances when just this slip has caused confusion!) The actual weight of the child is then determined, by means of any good balance scale. It is then a perfectly simple exercise in subtraction to find the number of pounds over or under weight; and but a slightly more difficult task in proportion and percentages to find the degree or percentage over weight or under weight, as the case may be. This has all been gone into in such detail in Chapter II, that it hardly seems necessary to repeat it here.

What then shall we agree to call overweight serious enough to justify investigation and interference? It will be remembered that, for practical purposes, it was agreed to consider as *undernourished* any child whose weight was as much as seven percent below the average for his age and height. And because this degree

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of underweight is so constantly found in overwhelmingly large numbers wherever a health census and evaluation of children is taken, we decided to consider ten percent below average the limit beyond which we must not allow a child to drift, without taking serious steps to rescue him from his really perilous condition.

When it comes to the opposite condition, overweight, nutrition workers have agreed, in accordance with the practise of the Life Insurance Companies, to consider that as much as twenty percent *above* the determined average may be allowed, and considered fairly good insurance. Anything above this, however,—which means that the child is one fifth again as heavy as other children of his height, age, and sex,—may be considered to indicate that he is suffering from some very definite handicaps, emotional as well as physical; and it is distinctly the duty of the elders who are responsible for his welfare, to take the matter seriously in hand, and help him to get down below this limit both of safety and of desirability.

We may frankly admit at the start, that

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physical defects are not nearly so common, even in the seriously overweight child who is as much as twenty percent *above* average, as they are in his fellow who is but ten percent, or even but seven percent, *below*. And yet there *are* certain very real and definite defects which such a child presents, and disadvantages under which he labors, by reason of this very fatness. Any thoughtful student of children will at once recognize this. In the first place, the mere burden of what he has to carry round with him, makes it reasonably certain that the fat child will not go through any more exercise than is avoidable. He is so badly handicapped by the extra exertion, that it is "no fun" to race and run,—any more than it would be "any fun" for the ordinary youngster to run a race carrying a heavy suitcase in his hand, or a bulky rucksack upon his back. The less he exercises, the fatter he gets, of course. For although, as will be shown later, it is the amount of *food* much more than the amount of exercise, the character of the heredity, or the activity of the ductless glands, that has the greatest influence in determining one's weight; still it is self-evident that the

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amount of exercise taken will have *something* to do with this, as determining the amount of oxidation, or burning up of food taken in and tissues created, that is to take place. For it is a simple statement of a well-known principle of physics, that exercise taken means work done; that work done means energy used up; that energy to be used up must be supplied by the oxidation or burning up of tissues of the body, or food in the body, or both. When these are thus used up, the body naturally decreases in weight. If they are *not* burned up, they must of course be stored up in the body,—chiefly in the form of fat. This fat increases the weight of the body; and is itself a visible, as well as a ponderable, index and criterion of overweight.

A second disadvantage under which the fat boy or girl labors, is the constant strain on certain structures of the body which this extra body weight entails. For example, it is rare indeed to find a fat child whose arches have not fallen, and usually to the extreme degree. The muscles and ligaments which go to form the arches were never designed to hold up such a weight; and prudent Mother Nature,

though she always makes provision for a certain degree of overload, never contemplated the necessity of carrying round such a mountain of flesh! Accompanying this pronation of the feet, there is usually a marked degree of knock-knee present. This is due partly to the weight that has to be sustained, and in part to the compensatory readjustment in posture, entailed by the flattening of the arches just noted. The protuberant abdomen is another count in the postural indictment. And in addition to all the rest, there is apt to be a certain slackness and relaxation of the whole frame, due to the obvious fact that so much more weight has to be carried than the muscular and ligamentous equipment of the body is designed to accommodate.

A third disadvantage, not so easily noted, but none the less real for all that, is the strain on heart, lungs, and kidneys due to obesity. There is always more work to be done by the heart of the overweight child, than it was designed to perform. The same thing is true of the lungs. In similar wise, the kidneys have a greater strain to undergo, both in carrying off the waste products and toxins

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formed from the excess of foods, and in acting as an extracting system for a plant considerably larger than the original specifications called for! The digestive organs are likewise unnecessarily overtaxed taking care of the superabundance of food taken in. While all of these organs may be able to stand up under the additional work they are called upon to perform without suffering from it unduly so long as the child continues in perfect health, they are handicapped by just so much whenever the unexpected inroads of illness throw additional work upon them.

Perhaps the most serious disadvantage of all, in the case of obesity in children, as will readily be recognized by anyone who has a sympathetic understanding of child nature, is the emotional handicap under which the overweight child labors. If it is true that "nobody loves a fat man," far more is it the case that nobody admires a fat boy or girl. And admiration, or approval, or the commendation of one's peers, comes nearer to being "what men live by," than we are inclined always to realize. The excessively adipose adult has philosophic stores of consolation upon

which he may draw, which are lacking in the child. He is nicknamed "Fatty" as a matter of course in Boydom; sometimes still less attractive names are devised for him by his more than frank fellows, "Piggy" being among the least offensive. He is barred by his weight from active and successful participation in many of the games and other activities of boy life,—and by his lack of the heroic in appearance from the title roles in the dramatizations that are so real to youngsters at certain stages of their ethical development. In general, he is set aside from his fellows in a hundred apparently trivial but in reality cruelly poignant ways, in a sort of bad eminence which he is never permitted to forget.

Now that we are agreed that overweight is a handicap well worth the overcoming, and have convinced both the boy or girl and the parents of this fact, we are ready to take the next step, and ask, "How shall the overweight child reduce?" Having ascertained just how much over his average weight he is, and how much it is desirable for him to lose in order to come within desirable limits, it will be found well worth while going over the situa-

tion with child and parents, with a view to determining the best point of attack in arousing their interest in the job ahead of them. To a boy, the disadvantages of obesity are easily set forth, using as arguments the handicaps under which any fat boy labors, as discussed above. If dealing with a girl, the additional talking point of good looks can be made use of; though it must not be forgotten that the boy, contrary to general opinion in the matter, is by no means insensitive to this matter of his personal appearance. It should not be difficult, for one who is at all conversant with the secret springs of conduct in children (and one who is not so familiar had better devote him or herself to some other branch of medicine than pediatrics), to ascertain some mode of approach to the problem of reducing, that will offer real hope of success in the task ahead.

The next step to be taken, is to make out a forty-eight-hour diet record. This may be done by the youngster himself, if he is old enough, either with or without the help and direction of his parents. Such participation in the task may of itself be enough to

greatly enhance his interest in what he is about to be called upon to do. He should choose for making this record, two consecutive days that are not in any way unusual or exceptional; so that they will present a fairly accurate average diet, or cross section of his daily intake. This question of making the record of the diet has been gone into fully in the preceding chapter; so that we need not discuss it here.

This diet record should next be scored, using as a guide the one-hundred-calorie portion list of ordinary articles of the diet given in the preceding chapter, together with the very general and easily comprehended method of attacking the much-talked-about question of calories and measured feeling. Suffice it to say here, that instead of being some cumbrous, unwieldy ritual, that takes all the joy out of eating, the matter of caloric estimation of the dietary is in reality so simple that any child of eight can grasp enough of it to enable him to know and to do what is required of him in order to cooperate in his cure. In fact, it is so much more simple and easily comprehended than our customary jumble of old food prejudices and

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gossip about what foods are "fattening" and what foods are not, that it is really a relief to turn to it for the help that it can so easily and readily afford us. Remember that what we are interested in at this point is not that rather complicated matter of the "balanced ration" at all, important as that may be in some other connections. All that we need to grasp here is a rough and ready method of evaluating the total food intake in an average twenty-four hour period, in terms of the only common food unit we have, the calorie. With this easily grasped technique at our disposal, we may next decide what we are to do with it in meeting the problem of the overweight child.

Having thus estimated the average daily intake of the youngster in terms of calories, we have at our disposal a knowledge of just how much food is being utilized to maintain him at his present weight,—or to cause him to gain, as the case may be. We then decide, quite arbitrarily, so to alter this daily food schedule that its total value is reduced by about one third; and to observe by means of the scale what effect this will have upon his weight, at the end of a week's trial. If this

causes a satisfactory loss in weight,—say a pound, or even as much as two pounds,—we may continue on this diet until the weight has come down to the point that we previously decided was the number of pounds desired. If on the other hand this does not produce a sufficient loss, we must proceed to cut it down still further, decreasing it by taking off one or more hundred calories from the day's total, each week, until such time as the desired loss ensues.

All of this sounds suspiciously simple, it is true. The reader may have his own opinion as to just how simple a matter it is to put into practise. To a certain extent, his pessimism may be justified. Cutting down the amount to be eaten by a normal healthy boy with a normal healthy boy's appetite, may be anything but a simple matter. Just how is this to be done, in actual practice; and just how is the youngster to be persuaded to stick to this depleted diet, which one might be pardoned for considering a real penance?

The first step in this process of reconciling the child to his new schedule, may well be a careful study with him of the table of one-hundred-calorie-portions. A little consideration

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will make evident the fact that some foods are bulky and space-consuming, while others are concentrated and require but little space. This is arrived at by the simple means of noting that things equal to the same thing (in this case, every thing in the table equals one hundred calories) are equal in value to each other,—and yet one fills but *one* tablespoon, while it may take *six or more* tablespoonfuls of another to come up to one hundred calories in food value. It will be perfectly easy for him to grasp throughout that the bulky foods will “fill him up,” quite as satisfactorily as the more concentrated ones; with the added advantage of using up but a fraction of the daily total of calories allowed him. Take for instance the choice between two vegetables. 24 heaping tablespoonfuls of cauliflower contain 100 calories; 2 heaping tablespoonfuls of canned corn have the same caloric value. It is not a very difficult decision to make, as to which of these two perfectly good vegetables is to be chosen, if bulk or filling ability is the main thing to be considered. Likewise, if 30 ounces of clear soup and 4 ounces of cream asparagus soup are alike worth 100 calories, the

former will be first choice for "taking the edge off" a voracious appetite. It will be found surprisingly easy to enlist the intelligent co-operation of the boy or girl who has once become "sold" to the idea that the thing to do is to make himself more like the rest of his group, by the simple means of getting rid of his surplus avoirdupois in this easy and painless fashion. The fact that he is perfectly free to use up his allotted quota of calories as he pleases, and have either a satisfied feeling or an unappeased appetite at the end of his meal, is a challenge to his intelligence as well as to his self-control; and he will frequently be found to respond to such a challenge with surprising maturity of attitude. Further than this, he will soon come to learn by actual experience some of the things that preaching has failed completely to bring home to him. For instance, he will find that eating slowly greatly aids in the creation of that feeling of fullness or satiety at the end of a meal, the lack of which is what makes "dieting" as commonly practised such a sad and dismal procedure. He will find that sipping milk makes it "go further" than gulping it; that

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tasting his food as he masticates it makes it last longer, and so apparently fill up much more space, than it would do if he bolted it. He soon comes to sense the fact that sweets and very starchy foods, candy, especially, are among the most highly concentrated articles of our dietary; and that if he indulges in them to an inordinate degree, he will quickly exhaust his daily quota of calories without obtaining a proportionate share of either strength or satiety.

It may seem to the hasty observer that this method unduly focusses the child's attention upon his food. As a matter of fact, it is the usual experience of those who have overweight children to deal with, that these youngsters are already too much interested in the matter of their food! Many of them are veritable gourmands; and it is certainly a desirable consummation, rather than the reverse, if this abnormal and undesirable interest can be diverted into the valuable channel of a scientific evaluation of foods upon such lines as have been indicated. The lessons learned about food values, driven home by the interest that

has been thus skillfully aroused, and reinforced by the direct bearing that they have upon the appetite and the food intake, carry over into adult life; and may prove of lasting benefit throughout the years to come.

A word as to the bearing of the endocrines in the causation of obesity in children. The importance of the influence of the internal secretions of the ductless glands is of course the medical question of the hour; and few indeed are the overweight children who escape the dosing with glandular products that has become such a fad these days. Especially is it probable that the child will have been given thyroid extract; and perhaps some of the other gland extracts will have been tried, or the convenient "shotgun prescription" known as pluriglandular therapy. It is no exaggeration to say, however, that for one true gland dyscrasia producing obesity in childhood, there are a hundred or more cases of unadulterated overeating. The doctor, nurse, or nutrition worker who expects glandular therapy to cure obesity in any appreciable number of cases, will be doing a grave injustice to a class

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of children who stand in real need of help; and will have a discouragingly low proportion of successes to record.

One word as to the influence of heredity upon obesity in children. He would be given to rash generalizations indeed, who would presume to say offhand that obesity does not run in families. This is quite a different thing, however, from saying that it is directly inherited. While it is probably quite true that a tendency to overweight, coupled with an inability thoroughly to oxidize foods, and tissues after these have been formed from foods, may be passed down from parent to child in certain instances, it is far more generally the case that the child learns the habit of overeating from the example of one or both parents. In this sense, obesity is handed down from parent to child; but not by heredity. It is nothing more mysterious than direct imitation of a faulty behavior model. In such cases the cure is relatively much harder to obtain than when this element does not enter in; inasmuch as it involves bringing about a change in the behavior of the adults comprising the family, as well as in that of the child

alone. Needless to say, however, the cure is greatly simplified, when the parents can be brought to realize that they themselves, even more truly than is the case with their overweight child, are "digging their graves with their teeth"; and can be brought to cooperate in the child's cure by bringing their own inordinate eating within bounds, as well as by changing their catering to conform to the newer, simpler, and more scientific prescription of the nutrition worker, who thus becomes of benefit, not alone to the child, but as well to the whole family.

One word of caution should perhaps be spoken, before leaving the question of "reducing." While calories alone have been considered in this chapter, we must remember that there are many other things to be considered in evaluating a diet than its mere caloric value. Especially is it well to remember that whatever else is deleted from the diet of a child, milk must always be included in it. None of the domestic animals can thrive if deprived of milk during their period of immaturity; and what is true of the other animals, is cer-

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tainly equally true of the highest of all. Milk is an indispensable article of man's dietary.

In leaving the question of bringing the overweight child down to normal, it may be well to remind those whose problem this is, that the elements of praise and of competition apply with quite as much force to this child and his efforts, as they do to the undernourished youngster who is trying to gain. Rewards, recognition, commendation, etc., as previously discussed, will prove quite as helpful in bringing about the desired end, when that aim is a loss of weight, as they are in achieving the directly opposite result, in the case of the underweight boy or girl.

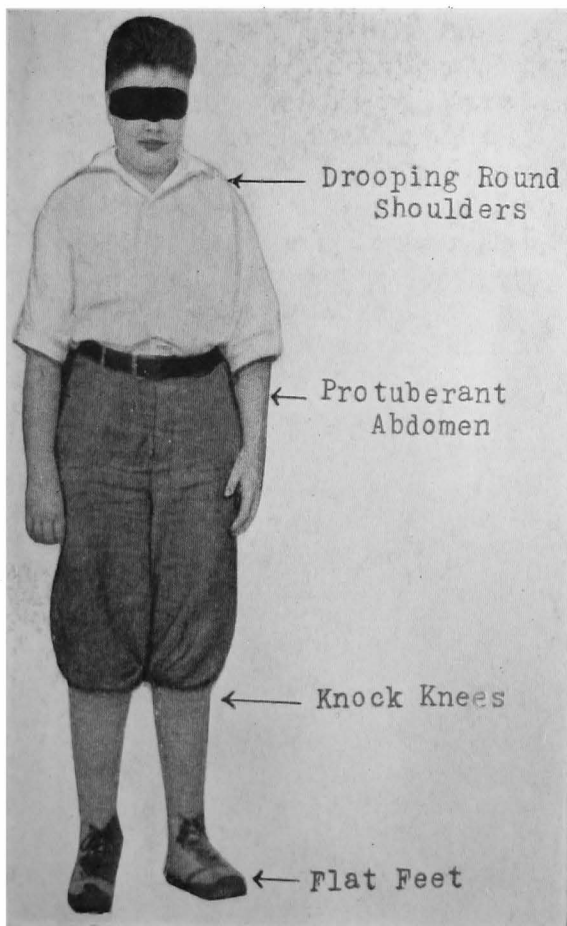


FIG. 28.—Beginning obesity.

CHAPTER XIV

POSTURE

SIMPLE CORRECTIVE EXERCISES

THE correction of the faulty posture so frequently observed in the under-nourished child, is and should be a matter of real concern to those who have his interest at heart. Many of us have tried "shoulder-braces" for sagging shoulders and contracted chests; "bow-leg braces" for bowed legs; and arches for flat feet; all with discouragingly indifferent results. Needless to say, all of us having tried nagging, that last (and sometimes first!) refuge of the barren mind when placed in a position of authority over children. On the other hand, many elders are almost criminally negligent as regards the faulty posture of the children for whom they are responsible.

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A prerequisite to the successful treatment of faulty posture, is of course, the correction of whatever is the causative factor. If, as is so frequently the case, it is the direct resultant of the fatigue due to malnutrition, it is worse than silly to nag, and hopeless to apply and adjust corrective apparatus, for we are but adding additional evils to those already at work. Such a course leaves the child worse than before it was begun.

In other words, we must bend our energies toward treating the malnutrition, remembering what has been said in previous articles regarding school strain, poor appetite, emotional stresses, etc. Leaving faulty posture alone for the most part, we shall try to eliminate its causes. As this frequently involves the correction of physical defects as well as the re-education of the child along the lines of better health habits, it may take time. But rest assured that all such time will be well spent.

Are we then to disregard posture altogether? By no means. But let us give it its relative importance. Let us avoid an attitude of fussy over-solicitude; realizing that the gardener who prepares his soil, sows his seed, and



FIG. 29.—Relaxed posture.



FIG. 30.—“Fixed high chest.”

does his best in the way of watering and weeding and spraying, may safely rely upon "God, who giveth the increase." And similarly parents, nurses, and doctors must rely upon the force from within, the principle of growth, to give the proper development along the proper lines, without taking too much anxious thought as to the direction that such growth shall take.

Without recapitulating the causes that produce malnutrition, chief among which is the long school day and the ills attendant upon it, specific items must be included in our bill of indictment against the present-day school—when we come to consider faulty posture, namely: muscular inactivity from prolonged confinement indoors; the fixed desk that is too high or too low, and its fellow criminal, the fixed seat that is too low or too high; carrying a young library of heavy books back and forth between school and home; and faulty eyesight or hearing, which produce an unconscious or involuntary twisting or leaning in an effort to neutralize the defect. One of the most dangerous hazards is the danger of imitating the faults of a loved parent or teacher. This

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power of imitation, one of the greatest forces with which we have to deal, has been considered in a recent book¹ on another subject.

No one who has read the preceding chapters will be surprised to meet again the list of postural vices that have been found to make up the picture typical of malnutrition,—vices that so frequently persist even after the child has won back his expected weight-for-age-and-height. When we have eliminated the causes that were at fault in bringing about the condition in the first place, we may consider means for dealing with each of these, insofar as they still persist.

The round sagging shoulders, flattened chest, "winged scapulæ," and prominent abdomen may be considered together, as we discuss what the singers have agreed to call "the fixed high chest," in the following study.

If any one whose posture is lacking in the elements that make for a correct stance, will place himself in front of a full-length mirror in such a way that he can observe his own profile, and will then take as deep a breath as he can, he

¹The author's "Parenthood and the Newer Psychology." G. P. Putnam's Sons, 1926.

will be surprised at the improvement that will at once be noticeable in his posture (Figs. 28 and 30). His chest will appear much larger than before; his back will appear flat instead of curving; the shoulder blades which were previously noticeable as prominent triangles will have merged into this flatness of the back; the abdomen, previously somewhat protuberant, sagging, and ungracefully prominent, will have disappeared from the picture, and have been succeeded by a most satisfactory flatness; and the whole figure will have an erectness and trimness quite in contrast with the "slump" which characterizes the posture of most of us when we are off our guard. The disappointing thing about this is, however, that as soon as the air is allowed to escape from the chest, the original relaxation with its customary poor posture returns. What the singer is taught to do, however, is to retain by force of muscle alone this position of the chest that he originally assumed solely by virtue of inflating his chest with air. In other words, by practising the maneuver frequently, he learns to retain the greatly increased chest volume thus attained, although allowing the inspired air to escape. It is an

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interesting fact that so long as the "fixed high chest" is thus maintained, all the rest of the desirable postural accompaniments remain in evidence, although no thought is given to anything but maintenance of the enlarged thoracic air space.

The anatomical explanation of the singer's posture lies, of course, in the role played by the diaphragm in the complex act of breathing. There are two ways in which the chest can be enlarged for the inrush of air that we call "inspiration,"—for we realize that what we loosely and inaccurately speak of as "drawing in the breath" is simply the result of an increase in the cubic capacity of the chest, into which more air at once rushes, as Nature abhors a vacuum. One of the ways to increase this space is by lifting the ribs upward, forward and outward,—what is commonly called "costal" or chest breathing. The other way is by depressing the diaphragm, which is the horizontal wall of muscle that divides the trunk into those two cavities, the chest and the abdomen. This also increases the capacity of the chest cavity, and thus allows air to rush in to take up the additional space made available.

While voluntary or forcible breathing is usually accomplished by means of the first method (the costal), it is perfectly possible to breathe forcibly by employing the abdominal, or second, method. In ordinary breathing, especially in the case of men, much of the work is done with the diaphragm, the chest being allowed to remain relatively unexpanded, or "low." The trained singer, on the contrary, holds the chest at the position of greatest expansion ("the fixed high chest"), while doing most of his breathing by means of the alternate contraction and relaxation of that very complex muscular wall, the diaphragm.

The application of this principle to the posture of the child is largely a question of "salesmanship." He is placed in front of a full-length mirror, and asked to look at himself in profile. He is then told to take as deep a breath as he can, and notice how much more like a soldier he looks while he holds it. Next, he is encouraged to keep this posture, watching himself the while so as to see that he does not "slump," while he allows his breath to escape. This may be helped by the doctor's going through the desired action himself, while

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the youngster looks on. While there is of course much difference between different children, in the readiness with which they get the idea that is to be conveyed, it is really rather exceptional to find a child who fails absolutely to follow the maneuver, even at the first seance. The mother is told to go through this exercise herself each night and morning with the child, at first taking but one or two deep breaths, and then letting them out while the chest is held high; later, increasing this gradually, until a dozen or twenty inspirations and expirations have been taken in and let out, without lowering the chest. If the child is especially fond of the father, it may be wise for him to take the mother's place as fellow exerciser. The next step is for some elder to call the attention of the youngster to his reflection in shop windows as he walks along the street; and to encourage him to assume and hold the "fixed high chest," from time to time, as he walks along. While no attempt is to be made to have the child maintain this posture permanently, it must be remembered that there is an inherent tendency on the part of the muscles employed in holding man erect, to continue functioning properly,

when once they have been trained to do their work correctly. It will therefore become increasingly easy for the child to approximate permanently correct posture, the longer and the oftener he makes the attempt. While the elders interested in bringing this about must of course be on their guard against "nagging," they can accomplish wonders, if they will persist in a tactful way in stressing this correct posture, by both precept and practise.

It has been seen that this practising of the "fixed high chest" will eliminate several of the postural vices so commonly met with in malnourished children. When we come to bow legs, or the opposite condition, knock knees, however, we are dealing with something far less amenable to corrective treatment of the simple sort outlined above. When either of these is present to a very marked degree, the case is not one for a posture worker, nurse, general physician or children's doctor. It has become an orthopedic problem. Two things must, however, be remembered in this connection. One is that even marked degrees of deformity, especially when rachitic in origin, tend to spontaneous improvement and even to

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actual cure. The other is that what frequently appears to worried parents as an example of a marked degree of bow-legs, may be nothing more than their perfectly physiological curvature in the normal baby. It is well to realize that certain apparent defects are in reality perfectly normal in babyhood or early childhood. This apparent bowing of the legs is one of them; and if it were not present at this stage, the normal configuration of later life would not come about.

A word may be said here as to what *not* to do for bow legs. The "bow-leg braces" designed to overcome the bowing of the legs by the exertion of continued pressure are anything but desirable. They are very difficult to apply and keep in place; and in the vast majority of cases it would be quite impossible to exert sufficient pressure to accomplish anything in the way of changing the shape of the legs, without producing pressure sores. Another thing to avoid except in rare instances, is the resort to operation. So many cases of apparently hopeless deformities in which operation has been refused, have been seen later in life completely cured by Nature, that the con-

scientious doctor has become very chary about prophesying the dire results of neglecting operation in these children.

Again, much has been said and feared about the dangers of allowing a child to walk too early, for fear of producing bow-legs. Anyone whose knowledge of children is at all intimate or "first-hand," knows that it is quite as impossible to keep a child from walking, once the time for him to want to walk has arrived, as it is to teach him to walk before Nature is ready to have him. They are alike impossible. Equally futile is the advice "to keep the child crawling as long as possible." This is a matter of development from within outward. Some children never do crawl; and the careful observer of children could ask no better fun than to see one of these amateur advisers try to "keep a child crawling," when he is ready to walk! Needless to say, so-called "baby-walkers" are worse than useless,—they are absolutely harmful. And of course they are ineffectual; for until a baby is ready to walk, no man or machine can make him do so.

Flat-foot is a condition that owes its origin, in part, to the relaxed condition of muscles

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and ligaments that goes with malnutrition. Its correction cannot be wisely considered apart from the general program. Inasmuch as it will not necessarily be completely corrected by the removal of the contributing malnutrition, however, it deserves additional consideration.

As a matter of fact, even a marked degree of flatfoot may exist in childhood, without the occurrence of the severe symptoms that are so apt to arise from this in later life. This is because the proportionate weight of the child is so much less than the weight of the adult, that even a faulty architectural feature like a poorly built arch is sufficient to bear the burden, without calling in the accessory muscles, and painfully stretching ligaments and nerves, as occurs in the older patient with flatfoot. Further than this, many children who are perfectly normal otherwise present quite a drop in the arch, as seen by examining the print of the wet foot as the child leaves the bathtub. In cases where the drop is considerable, however, it is well worth while to consider the advisability of combating it. This may be done in one of two ways, namely: (a) the me-



FIG. 31.—Toes straight forward,
feet slightly apart.



FIG. 32.—Rise on toes.



FIG. 33.—Roll over on outer
borders of feet.

chanical, by shoe fitting; and (b) the physiological, by exercise.

(A) *Mechanical*. First, by seeing that the shoe is both broad enough and long enough, and that its construction permits all muscles to function normally. The toes should have room to move about quite as freely with the shoe on as off. One need have no fear of an "over-size" which though possible is quite improbable in the case of the young child. The woolen stocking that has shrunk may be quite as much of a menace as the tight shoe.

Next, by having any shoemaker cut out a crescentic-shaped piece of leather, and tack it to the lower surface of the middle of the sole. This should be from one-quarter to one-half an inch in thickness at the inner side of the shoe; tapering away to a thin edge at its circumference, so that it may lift the inner side of the sole, and shift the direction or angle at which the foot does its work,—quite a different thing from "supporting the arch," which is what the old fashioned arch supporter does. What we want to do is not to supply a crutch to take work away from these foot muscles that have proved unequal to their job; but simply to put

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the structures into correct position, so that all the muscles concerned may work at the proper angle and in the normal relationship to each other, thus obviating the strain which comes when muscles anywhere have to do their work in other than the way Nature intended that they should. This little device can easily be applied to the *outside* (that is to say, the *underside*) of the sole, by any shoemaker.

(B). *Physiological*. By foot exercises. These must be eminently simple, in order to bring them within the grasp of the child's interest and ability. The following ones have been chosen from a great number, as filling these requirements.

1. Stand with the feet parallel, and slightly apart, and the toes straight forward, as in Fig. 31. Rise on the toes, as in Fig. 32. Slowly subside, letting the outer sides of the soles take the weight of the body in a rolling motion, until the heels touch the ground, as in Fig. 33. Resume the original posture, Fig. 31, and repeat ten or a dozen times. This gives a sort of "rolling" motion to the feet, in the following order: Toes, outer sides of feet, heels, and whole of soles.



FIG. 34.—Heels out.



FIG. 35.—Toes straight forward.

2. Stand as in Fig. 31. Move heels outward, to bring feet parallel but widely separated, as in Fig. 35. Move toes inward,—which brings one back to Fig. 34. Move heels inward, making feet parallel again as in the beginning, Fig. 31; and repeat as often as desired. It will be noticed that the toes are turned *in*, never *out*.

3. Sit with feet extended in front; and place soles of feet in contact with each other, the knees well bent, and far apart, as in Fig. 36. Then push the feet as far away from the body as possible, being careful to keep the outer borders of the feet in contact, as in Fig. 37. Repeat.

4. Give each child of a group the same number of marbles, or other small objects, Fig. 38. At a pre-arranged signal, each is to pick up his marbles with his toes, as in Fig. 39, and place them in a specified receptacle, using first one foot and then the other. The element of competition makes this exercise very interesting.

5. Similar games may be devised, using the toes to move a towel under the sole of the foot, starting with the toes at the rear border, and working it toward the rear until the toes reach the front border. Fig. 40.

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6. Walk a straight line with absolute precision, making the inner borders of the feet approximate the line with perfect accuracy. Fig. 41.

7. Place the balls of the feet on the rung of a table, or similar horizontal bar, with the feet absolutely parallel, as in Fig. 42. Lift the weight of the body, by extending the feet,—that is, by rising on the balls of the feet,—as in Fig. 43. Let the weight of the body slowly subside, returning to the starting position shown in Fig. 42, and being careful to keep *the heels on a line with the toes*. They must not be allowed to sink below the level of the toes.



FIG. 38.—Picking up marbles with toes and placing them in a designated spot.



FIG. 39.—Each person is given an equal number and each foot must be used the same number of times. Competitive games may be ar-



FIG. 40.—Using toes to move a towel under the foot.

CHAPTER XV

MENTALITY AND MALNUTRITION

WHAT IS THEIR RELATION TO EACH OTHER?

THE exact relationship between mental retardation, emotional instability, and malnutrition is not clearly established.

On the one hand we recognize the fact that some of the most perfect physical specimens of school and pre-school children show extreme degrees of mental retardation, as well as of emotional inferiority or actual psychopathy; and that mere inspection of such children, without detailed and painstaking mental and character determination, is frequently the rankest and grossest injustice to them, because of the striking disparity between their physical perfection and their mental hopelessness.¹ On the other hand, workers in nutrition without

¹ "The Nervous Child," by the author. G. P. Putnam's Sons, 1927.

exception find some degree of mental retardation not uncommon among the underweight children with whom their work concerns itself.

One well-known medical nutrition authority, when asked how long a time was required to bring a child up to his normal weight-for-age-and-height, replied quite frankly that whenever a child stayed for very many months in his nutrition class without attaining his required weight, he seriously suspected him of mental retardation.

A very reassuring message as to the effects of severe malnutrition in causing mental defects, is found in a study of "The Mental and Nervous Changes in the Children of the Volksschulen, of Trier, Germany, Caused by Malnutrition," which appeared in *Mental Hygiene* for July, 1919. This study was made by Dr. Smiley Blanton, of Minnesota, now professor of Child Hygiene in the new Euthenics Division of Vassar College. He reports a 7% increase of retardation in a school population of 40% malnourished, with but 1% increase in mental defectives. He concludes that a good nervous constitution can resist severe and long-continued malnutrition, without suf-



FIG. 41.—Walking a straight line with the body in the erect position.



FIG. 42.—Place balls of feet on table rung with feet parallel.



FIG. 43.—Raise the body by extending the toes.

fering a mental set-back as a result. This is indeed a cheering conclusion, not only as regards our own problems here in this country, but far more as it concerns the populations of some of the devastated areas in Europe. Grave fears have been expressed as to a possible permanent mental retardation as a result of the war and post-war privations suffered by these children. Reassurance from such an authority is most encouraging.

It is of course almost a truism to repeat here that some sort of mental evaluation and character analysis should constitute an integral part of the preliminary or "admission examination" of every child, as part of the complete picture of the condition which is to be treated. On the other hand, many doctors as well as most nurses hesitate to assume the responsibility that they feel is involved in attempting to make such an evaluation, as their medical or nursing training has not covered this field in any but the sketchiest, most general way. In fact, no little criticism is quite likely to attach to any nutrition worker, not specially trained in mental testing, who attempts this sort of thing; and psychiatrists, practical psy-

chologists, and social workers with special psychiatric training, do not hesitate to make slighting remarks about "lay interference" when such examinations are attempted by anyone but themselves.

This is hardly fair. Of course it is most desirable wherever possible that mental examinations be made by persons whose special training particularly fits them for the delicate task of evaluating mental age. But the fact remains that for the vast majority of these children, a rough preliminary test must be made by the doctor, or nurse,—or else remain unmade. An undetected mental retardation may be quite as serious as an undetected cardiac lesion.

For such a rough, approximate testing of the mentality of a child, there is perhaps nothing better to be recommended than the Binet-Simon tests. These were first brought to our attention here in America through the painstaking work of Dr. H. H. Goddard, then of Vineland, New Jersey. He translated the work of Alfred Binet, the Paris doctor who was the first to devise a set of test questions, of such a character that ability to answer them

gave an examiner a very close approximate idea of the individual's mental age, irrespective of what his educational advantages might have been. This distinction is of course of prime importance; for it is very desirable for a worker to learn not so much what a child may have been taught, but what his mental development will allow of his being taught. In other words, the uneducated illiterate child should, and will, occupy about the same grading by these tests, as will the child who has been subjected to school influences.

Goddard not only translated Binet's tests; he codified them, and did some adjusting and adapting, to make them feasible for use with American children. His contribution to the subject of mental testing for children has been a most valuable one; and for a long period following his introduction of the Binet tests, his adaptation was by all odds the best and most widely used of all the sets of tests that were devised.

Following his work came the Stanford modification of the Binet Measuring Scale, the Yerkes Point Scale, and Terman's extension of the Binet. The introduction of the I. Q.,

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or intelligence quotient, which gives a rough approximate idea of the relationship existing between a child's actual mental level and the hypothetical normal, has also been of great value in aiding us to visualize the mental development of the child with whom we are dealing.

Every worker with children should have at his command a sufficient familiarity with the technique of one of these sets of tests, to enable him to confirm his suspicions with regard to whether a given child is seriously below normal in his mental development. This does not mean that every doctor should qualify as an alienist. It does mean that every child should have the benefit of a simple testing that may bring to light a mental retardation which is having a serious influence upon his whole present and future life. The detection of any considerable deviation from the normal should of course be the signal for giving a child the benefit of a complete examination at the hands of some one who can properly grade him. In case he is found to be one of that vast army whose ability to develop intellectually has very limited possibilities, this fact must be taken

into account in planning his whole future life. His educational load must be lightened; for these children whose limitations are thus recognized are frequently found to have been suffering under the burden of demands from teachers and parents that are so heavy as to have put them perilously close to the breaking point nervously. Life can be so adjusted that it no longer presents an insupportable burden to them; and they can develop within their limits into perfectly respectable, valuable citizens. Unrecognized, their handicap would have spelt failure,—as it has done in the case of so many of these mentally handicapped children, who have failed in college, and in positions calling for an intellectual ability hopelessly beyond their reach. Society needs the mentally limited for many of its important tasks; but they are a serious liability to society and to themselves, until their limitations are definitely recognized, and their abilities utilized along lines adapted to their capabilities.

A very worthwhile preparation for such an evaluation of the mental abilities of children is offered in a short summer course for doctors and social workers at the institution for the

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mentally retarded at Vineland, New Jersey; and similar short courses in mental testing have been made available elsewhere. They are to be recommended, not as a substitute for psychiatric training, but simply as a means for learning to detect abnormalities that call for special treatment at the hands of those who have been so trained.

CHAPTER XVI

THE CURE OF MALNUTRITION

WHAT CONSTITUTES A CURE?

WHAT constitutes a cure of malnutrition? In other words, by what signs shall a mother, or her physician, know when a child has passed out of the danger zone, and has reached the point at which no further treatment or medical observation is necessary? As there are symptoms and signs by which this condition of malnutrition is recognized, so it seems as if there ought to be other definite indications, on the strength of which it would be possible to call a child definitely cured of the ailment.

It would be quite fair to say, in a general way, that the improvement of the child in respect to all of the vicious symptoms and signs that he previously showed, should be considered a cure. In this sense, one does not need

to tell the mother of a malnourished child that he is cured. The fact that he now has an appetite, whereas before he had none; that now he runs and laughs and jumps and romps, whereas formerly he moped and sulked and seemed half-sick all the time; that now he is plump and rosy and well-nourished, whereas formerly he was thin, sallow, and "poor," to use the expressive term of our ancestors; these are enough to make the long-suffering mother of a youngster who has been thus transformed, sing to the housetops the story of his "cure."

All of this, however, convincing as it may seem to his parents and friends, and important as it is to the youngster himself, is not exact enough to be designated a "cure," in the sense in which a scientific worker uses this term. For this purpose, then, it is fair to state that, as a definite degree of underweight, compared with the weight expected of a child of his age and height (7% in some clinics, 10% in others) should constitute malnutrition, so a cure of malnutrition must prove itself by producing a definite gain in weight. This gain should be either up to the average for the child's age and height; or, better, a small per-

centage over and above such a normal weight. This has been graphically described as "going over the top"—a recollection of the war times in which the nutrition class came into its own. The weight chart gives evidence of this eagerly awaited consummation, when the actual week-to-week weight curve of the child, which has been creeping along at some distance below the line that represents his ideal weight for the same period, but has been gradually approaching it, at last comes up to and passes above the line of normal weight. Such a "going over the top" should be heralded eagerly and enthusiastically, and should be recognized fittingly by the observance of some properly worked out formality, to which the rest of the children may also look forward with eager anticipation. Doctor Charles Hendee Smith, in his Bellevue Hospital Nutrition Class, has a formal graduation ceremony, at which each child who has satisfactorily carried out instructions and has as a result gone over the top, is given a diploma of health. (Fig. 44.) One of his most obstinate cases never did seem quite able to make the necessary effort to cross the line, until by

BELLEVUE HOSPITAL

NUTRITION CLASS



This is to certify that

has graduated from the

NUTRITION CLASS

by reaching normal weight for height and age. This was done by following the

RULES OF HEALTH

EATING THE RIGHT KIND AND RIGHT AMOUNT OF FOOD.

EATING SLOWLY, CHEWING WELL.

SLEEPING TEN HOURS WITH OPEN WINDOW.

RESTING ONE HOUR A DAY.

KEEPING CLOTHES AND BODY CLEAN.

BRUSHING TEETH AFTER MEALS.

HAVING BOWELS MOVE BEFORE SCHOOL.

Date

Signed

a happy inspiration, he offered a longed-for pencil box as a prize for such a result! This incentive was too powerful a one to fail of results; and the youngster "made the grade" with flying colors!

What should be the future handling of a child who has thus been "graduated" from the nutrition class; or who has made such gains in the doctor's private office as to be considered "cured?" In practice, the hospital nutrition class is as a rule so sadly overcrowded that the places occupied by its successful registrants can no longer be reserved for them, when once they have made this signal gain. One of the sad commentaries upon our boasted progress, is the fact that so often these youngsters, if looked up six months or a year later, may be found to have slipped back to a point almost as bad as that from which they were rescued by the efforts of the nutrition class in the first place. Of course this ought not to be allowed; and in order to prevent its occurrence, some sort of follow-up should be devised, such for instance as was created in connection with the nutrition class at the Brooklyn Hospital. Here the children

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whose gain back to normal had demonstrated that they no longer needed the intensive efforts of the nutrition class force, were kept under a less rigorous surveillance and with a less ironclad regimen, in a sort of play relationship called the Health Class. Here one of the volunteer aides taught health games that illustrated food values, coached the youngsters in health plays and pageants, and kept them under the influence of the hospital social service workers. Instead of the weekly weighing, a monthly weight determination gave the necessary information as to their nutrition. Any failure to gain, or an actual loss in weight, was the signal for the institution of the necessary corrective measures.

How should such children as have gained "back to normal" in the private practice of the physician, be looked after? Should they be discharged as cured; or should they too have some sort of "follow-up" system inaugurated in their behalf, in order that they may keep the good health that has been won for them? And are parents willing, once their children have been rescued from the danger zone of malnutrition, with all of its manifold

disadvantages, to go on paying the doctor to keep the youngsters well?

As a matter of fact, this development that has sprung out of the experience of nutrition class workers, bids fair to become one of the most interesting and valuable developments of medical practice of the future. There has been much talk among thoughtful leaders within and without the medical profession, of a "keep-well service," similar to that given by the veterinarian to high priced blooded livestock, or by up-to-date garage mechanics to expensive motor cars. This, as will readily be seen, is exactly what the doctor is doing for the children of his practice, when he not only cures their acute diseases and brings them up to normal when they are below par, but in addition looks after them in health, and directs their lives in such a way as to maintain them at their highest possible efficiency. A monthly, three-monthly, or half-yearly service such as this, following in the train of such an intensive examination as has been described in connection with the nutrition class, has been found to be of inestimable value, by such enlightened doctors and appreciative parents as

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have created it for the youngsters under their care.

The benefits of such a course are obvious; many equally valuable features, not so obvious, will readily come to light when the plan is even casually examined. One of the most sensitive recorders of health in childhood is the weight-curve; anything that even temporarily interferes with a child's welfare, such as a mild intercurrent "cold," or a simple toothache, will register its presence by a failure to make the customary gain, or even by an actual loss in weight. Similarly, anything in the school life or the home life that increases the fatigue of the daily living beyond a certain point, will register its presence in the same way, although frequently not indicated by any other symptom or sign. Too much social dissipation, late hours, or any of the various factors that militate against health in the life of the child of today, may thus be checked up. A parent who might otherwise hesitate to discontinue outside music lessons or tiring rehearsals, is frequently brought to realize their seriousness, when she recognizes their effect

in the form of a stationary or receding weight-curve.

But this is only the beginning of the story. A child who is coming to the doctor at stated intervals for observation, cannot fail to receive an entirely different handling from that accorded the sick child. If the doctor is to continue to keep the interest of the parent, he must acquaint himself with the daily life and routine of his patient; and must constitute himself the family adviser in all matters pertaining to his health and efficiency. School, athletics, amusements, all should come under his purview. Further than this, an unexampled opportunity is thus presented for protecting the rising generation against the diseases against which we already have a safe and sure protection,—and against such others as may from time to time be added to this list. Diphtheria, typhoid fever, and small-pox are so far the only ones about which we can say with positiveness that every child should be protected against them,—and *can* be protected with safety, efficiency, and a reasonable degree of durability. But scarlet fever will very soon

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have to be added to this list, and a half dozen other common diseases of childhood must doubtless soon lose the power that mystery has thus far given them; for scientists are close upon their trail. Beginning eye-strain, vicious nose and throat conditions, postural defects, can be nipped in the bud, instead of being allowed to develop, and then having to be cured. Periodic examinations of urine and, if advisable, of blood and stool will give timely warning of the beginnings of diseases that might otherwise gain a serious or even fatal foothold before they were discovered in the ordinary course of events. In short, we shall sometime begin to give to our children the same sort of elementary, common sense protection that the modern up-to-date farmer has for long been giving to his stock and crops; and that the sensible automobile owner is coming to demand for his motor car!

We have for ages past known enough to give treatment of some sort to our children when disease actually came to them. Of late years the nutrition class idea has come, to teach us to bring back efficiency to these youngsters, even though out-and-out disease, in the ordi-

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nary sense of the word, has not yet claimed them. And now the medicine of the future must concern itself with *maintaining* the highest state of efficiency possible for each child, without waiting for danger signals to come and warn the inattentive parent that it is time to "do something." When we shall have learned this lesson,—and the wiser, more alert parents of this country are fast learning it, as are their advisers, the more forward looking of the doctors,—a day of unlooked-for and unthought-of health, happiness, and efficiency will dawn for ourselves and our children.

CHAPTER XVII

WHAT HAS BEEN WRITTEN ABOUT MALNUTRITION

BIBLIOGRAPHY

THERE is much that has been published of recent years, that can be of distinct help to those who have to do with the undernourished child. Although many of the articles that have appeared have come out as scientific contributions in the medical journals, there is a great deal of value that is available for the use of laymen. This chapter, while by no means exhausting the list, and without aspiring to the dignity of a real bibliography of the subject, briefly runs over some of the most practical and helpful contributions that have been made to the literature of malnutrition.

In 1919, Doctor Wm. R. P. Emerson, of Boston, began in the *Woman's Home Com-*

panion a series of articles on the subject of Malnutrition. In this series, which was written in popular form for the specific purpose of arousing mothers to the dangers of neglecting this condition in their children, various phases of the subject were dealt with in a simple, convincing way that did much to focus public attention and interest upon the whole subject. These articles were reprinted; and they may be secured by writing to the *Woman's Home Companion*, New York City.

Perhaps the most valuable book on this subject that has so far appeared, is that written by this same authority, and published under the title of "Nutrition and Growth in Children" (Appleton, N. Y., 1923). This is most interesting to anyone who is practically concerned with the subject. It incorporates the articles mentioned in the preceding paragraph, and gives much new material. Illustrations, lists of forms used in nutrition classes and in private practice, and a list of publications issued by "Nutrition Clinics, Inc., Boston, Mass.," make this book especially valuable and practical.

A stimulating little booklet that covers this

subject in a remarkably full and satisfactory way, was issued by the Children's Bureau in 1919, under the title, "What is Malnutrition?" The subtitle is the arresting statement: "Hundreds of thousands of American children are undernourished." It was written by Lydia Roberts; it says a great deal in a very limited compass and in a very concise style; and contains a helpful bibliography of the literature up to the year following the Great War."

Three pamphlets are to be recommended, for guidance as to the actual conduct of a nutrition class. These are: "Nutrition Clinics and Classes—Their Organization and Conduct," W. R. P. Emerson; "Methods Used in a Class for Undernourished Children," by Charles Hendee Smith; and "The Nutrition Class," by the same author, published by the Child Health Organization of America, which has since merged with the American Child Health Association, 370 Seventh Avenue, New York City. For the doctor, the nurse, the teacher, or the social worker interested in

¹ A very excellent book by this author, encyclopedic in scope, has just been received. It is "Nutrition Work with Children," Univ. of Chicago Press, 1926.

the formation of a nutrition class in connection with the hospital, the clinic, the day nursery, or the school, all of these will be invaluable. For the mother who wants to try to improve the nutrition of her child, or for the doctor who desires to embody in his own practice the ideas underlying this new development, all will be suggestive and helpful.

The New York Nutrition Council has assembled a "Nutrition Bibliography," which divides its subject under subheadings which greatly facilitate finding what one wants. The first is Nutrition, Growth, and Standards of Development; the second, Malnutrition,—Extent, Causes, and Effects; the third, Methods of Organizing Nutrition Work; the fourth, Health Essentials and Teaching Methods; and fifth, Health Material, including various forms, films, slides, charts, posters, etc., as well as booklets.

The Department of the Interior, Bureau of Education, Washington, D. C., has issued a little booklet of "Health Education Pamphlets," that may be secured from that source, at prices varying from 2 to 10 cents each. Perhaps the most up-to-date survey of the best in

the whole of child welfare literature is comprised in "A Brief Bibliography of Child Health," published by the American Child Health Association. This covers much more than the age group with which this book is especially concerned; but a bird's-eye view of the whole field is valuable.

The same organization has published a booklet that will prove most interesting to anyone who is inclined to doubt the value of periodic weighing, and of comparison of weights thus obtained with so-called normal or average weights, in view of the criticism which some writers have leveled against the reliability of such tables in general, and the scepticism that has been evinced about them in some quarters. It is called "The Scales"; and is a most satisfactory summing up of this whole question in a way that makes the difficulties seem negligible, in comparison with the manifold advantages to be derived.

Certain forms and printed material are essential for the person who essays to overcome malnutrition in the child according to the principles laid down in this book. This is true whether the reader be the director of a large

clinic nutrition class; a doctor treating in his private office one or more undernourished children; or a mother on an isolated farm, doing her best to help her own child overcome his handicap of malnutrition.

The first of these forms is some sort of a blank for recording as much of a history and physical examination as is taken,—varying of course with the personal desires and the technical training of the worker. A very full, elaborate form is usually employed in the nutrition class, especially if it is desired to use the records obtained for the purpose of drawing conclusions of scientific value from what is being done. (Fig. 23.) For the doctor in his private practice, a simpler form is suggested (Fig. 22); not that he would not profit by carrying out the fuller form that is customary with the institutional worker, but because record-keeping is rather more irksome for him, and even a short record is of value. For the mother compelled by isolation to forgo medical aid, and carry through the program alone, a very simple record consisting of weight, height, and a few notes as to posture, complexion, and facial expression may be sufficient

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for the physical record; though of course a mother may prepare the very best possible history, if she will, going into details as to heredity, earlier disease, habits, appetite, etc.

An indispensable part of the armamentarium consists in a large wall chart for each individual child, upon which is to be noted his weekly weight, and which is to bear the proud emblems of his faithfulness in going through the various health chores advised by the doctor,—such for example as his daily nap, his morning and afternoon lunches, his quart of milk a day, and anything else that may be deemed important enough to insist upon, and difficult enough to recognize by a rewarding emblem. This chart should be hung in a conspicuous place; and it should be brought to the attention of visitors in the child's presence, as being something of interest and importance. Nutrition Clinics, Inc., supplies these weight charts. The decoration of this column with the appropriate seals should always be done with a certain amount of ceremony. A large variety of Dennison seals, consisting of stars, legal seals, tokens, etc., of different colors and various sizes, are useful for recognizing the

“health chores” done during the week past. A predetermined number of pounds’ gain is usually signalized by the affixing of a seal of some sort. These are placed at the top of the column in which the week’s weight is recorded. The more of these that decorate a week’s record, the prouder the child is, and the more reason there is to hope for a continued gain.

The little Weight-Height-Age Table cards, with Boys on one side and Girls on the other, (Figs. 7 and 8) can be secured from the American Child Health Association, 370 Seventh Avenue, New York City.

Some sort of calorie table may be desired, of a more elaborate nature or of wider scope than the rough-and-ready table of one-hundred-calorie portions given on pages 182 and 183. For those who desire to go into this subject more fully, any one of the current books on dietetics can be recommended. A convenient form for recording the forty-eight-hour food record, has been made available in a little blank-book ruled for the purpose, which contains in the front most elaborate tables of hundred-calorie portions. These tables are so arranged that they can be employed as well by those desiring

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to go further into the subject, and construct dietaries in which balanced feeding is scientifically worked out. It can be procured from "Nutrition Clinics Inc.," Boston.

Much more helpful material is to be had by those who wish to go further into the subject, or to keep the element of surprise and variety, so valuable in all work for children, in evidence. What has been noted here, however, will be ample for the beginning of either a nutrition class, or of work with an individual child. Practically all of this is indispensable, however; that is, it represents an irreducible minimum for satisfactory work.

APPENDIX

A NEW NUTRITION CLASS AT THE BROOKLYN HOSPITAL¹

ANYONE who has served in a children's clinic realizes that there is a large percentage of cases that refuse to improve beyond a certain point considerably this side of complete recovery. Medicines, and such directions as we can give regarding proper food and hygienic conditions, seem helpless to carry the child further. Such children, if one takes the pains to weigh and measure them, will be found to weigh far less in proportion to their height than the average child does at the same age. Wm. R. P. Emerson, of Boston, goes so far as to say that one-third of our total child population belongs to this group of under- or mal-nourished children, with weights at least 7% and often 10% or more, below the average. It is for such children as these that the Nutrition Class has been established, and has quickly come into its own as an indispensable part of the up-to-date children's clinic. Emerson has found, and the records of the Nutrition Class established at Bellevue by Charles Hendee Smith bear out the statement, that practically all of these chil-

¹"Long Island Medical Journal," Jan., 1920.

dren can be made to gain enough to bring them up to the normal or average weight for their ages, providing certain conditions can be fulfilled. But these conditions can not be brought about through the ordinary medical pediatric clinic. They require the application of the joint forces of medicine, social service, and class appeal, if you will,—and the application of these in the proper proportions has resulted in the evolution of the Nutrition Class, as seen today in operation in the more advanced hospital clinics. Here, each child is given a searching examination, with a view to determining any defect that may be a contributory cause of his failure to gain; and his history, in great detail, is taken by a volunteer aide. An important part of the record is the weight and height, and their progress from week to week, as plotted out on a large graphic chart, where it is easy to make comparisons, favorable or otherwise, with a normal line. Each child is brought under the purview of a trained social service worker, in his home environment. She makes an initial visit to the home, and such follow-up visits as may prove desirable. She instructs him, and his mother, how to carry out improvements along lines sanitary, hygienic, dietic, and culinary. Each child is appealed to, by way of his love of team-play with his fellows, his delight in competition with them, and his desire for rewards, to do his best to carry out the little things that spell success in the game that they are all playing,—success as expressed in terms of pounds and ounces gained, with all that that means in general health betterment. The Nutrition Clinic, then, is the

place where all the forces that go to make for better health are focussed on the child.

There are three institutions which may well house the Nutrition Class. They are the school, the settlement house, and the hospital dispensary. Because the sufferers from this clinical entity, malnutrition, just beginning to be recognized and treated as such, are congregated in the school (and many of the causes of its creation and perpetuation are in operation there), the public school may well be chosen as the place for this remedial agency to function. Emerson's first public demonstration of his work with undernourished children was done in a few picked schools in the East end of Boston and the East Side of New York, ably seconded by the School Lunch Committees. Inasmuch as the problem is quite as much a social as it is a medical one, the settlement house and the A. I. C. P. have both established clinics,—although, for the matter of that, the children of the wealthier classes have been found to furnish the same proportion of cases as do those of the very poor! But, since practically the first thing to be done, before one can hope for a gain in these cases, is to remove the flagrant physical defect that is almost sure to be present (carios teeth, diseased tonsils and hypertrophied adenoids are the commonest offenders), or else improve it as much as possible (endocarditis, tuberculosis, and hypertrophied lymphnodes come a close second), the hospital, through its children's clinic, would seem to be the ideal home for this form of effort.

The Massachusetts General in Boston and the Post

Graduate and Bellevue in New York, have been the pioneers in these cities. In Brooklyn, the Brooklyn Hospital has been the first to render the larger service made possible by the addition of the Nutrition Class to the other departments of its pediatric service. The volunteer workers who take the histories and weigh and measure all cases coming into the clinic refer to the Nutrition Class all children that are 7% or more under weight. Unlike the procedure in the case of the Cardiac Class, or other departments, this does not transfer the child from the medical pediatric service proper; he is still carried there, and there treated for whatever condition brought him in. Teeth, nose and throat, or heart are attended to in the appropriate rooms, while the nutrition is seen to in the Class. Propaganda posters, large individual record charts, wax models of food and small rewards, are used as supplementary to the efforts of the doctor who talks to the children (and as many of the parents as can be induced by the visitor or the children to attend), in the big waiting room; while the rest of the physicians examine the new cases and weigh the re-visits in the examining rooms. A good Boy Scout Master usually proves a valuable Nutrition Class leader,—the appeal is of much the same order. One session a week is sufficient for a successful class; later on, as the weight increases, the child is told to come once every two, or it may be three, weeks. The social worker, with her reminder post-cards and her follow-up visits, is a tower of strength in keeping up the attendance.

The Government at Washington, through its Child

Welfare Bureau, is already attacking this problem along a wide front by enlisting the teachers of the country in a health campaign. We shall hear more and more of the malnourished child, in the months to come, and of efforts to bring him up to normal. No hospital can afford to attempt work among children without its Nutrition Class.

WHAT A CHILD SHOULD DEMAND OF HIS DOCTOR¹

The subject of my paper tonight takes it for granted that there are some rights inherent in every individual, which the right-thinking are bound to respect, whether that individual can enforce them or whether he cannot even voice them. Our adult patient frequently knows, or thinks that he knows, what he has a right to demand of his physician. Whether he demands what is best, and whether he gets what he demands, need not concern us now. What we shall insist upon, however, is the inherent right of every infant or child who is brought to a doctor, to receive diagnosis, and prophylactic as well as curative treatment, even though his is but a mute appeal, or though he has no language but a cry. This paper

¹ Read before the Society of the Ex-Internes of the Methodist-Episcopal Hospital, September 25, 1919, at the Montauk Club, Brooklyn. And, by request, repeated before the Pediatric Society of Brooklyn, October 22, 1919.

will discuss an attempt to comply with this unexpressed demand, satisfactory or not, as we conceive of our duty toward one who can insist upon nothing, if we refuse to grant his demand.

I want to present a tentative plan for the complete examination of an infant or child,—a scheme to be carried out more or less completely, perhaps, in individual cases, with a view to securing preventive, corrective and curative treatment of that child. And coupled with that goes the essential requirement, the instruction and inspiration of the mother who brings him.

The plan I am laying before you might perhaps be briefly described as a pot pourri or goulash of half a dozen more or less reputable medical and lay ideals. It embraces a dash of that much quoted old Chinese doctor pay-while-you're-well-stop-paying-when you - get - sick chestnut; a goodly element of the army medical examination (that searched out imperfections which would keep a man from enlisting, only to throw him into the arms of the selective service board, which worked quite as hard to keep him from escaping service!); all of the army's preventive sanitation and hygiene, as well as its serum and vaccine prophylaxis; and a liberal sprinkling of the life insurance examination's grilling, the Health Institute, and the Life Extension plan, with their initial complete examination and recommendations and their periodical re-examinations and checkings up. Stir this up, strain it through the good old family doctor's sanity, and season it with grandma's common sense,—for we need something to give balance and cohesion and propor-

tion to it all. All of these ideas our young mothers and fathers have become familiar with recently, even if they did not know of them before the war. They would like them for themselves; but they are beginning to *demand* them for their children.

Perhaps the nearest approach to what I have in mind, that has thus far actually been put into effect for children, is the nutrition class idea, for the school children of the very poor, that was tested out in two of the public schools of New York City, by Emerson of Boston. Instead, however, of putting the emphasis upon the providing of the proper food elements, and the proper caloric requirements (so necessary in the case of the children of the very poor), our emphasis is placed upon the portion of his work that is taken for granted, but that most of us find far harder to attain, in private practice, than getting the proper food. And that is, the complete and exhaustive preliminary examination of every child who is to enter the class, made effective by the correction of every remediable defect found, before he is admitted to the nutritional class at all! It is this correction of errors that most of us find such a herculean task. Emerson can, and does, bar from his class any child whose parents will not consent to the taking of all the steps prescribed by the examining physician for the remedying of any defects found. But what one of us is prepared to draw a similar line, and refuse to treat any child whose mother declines to have a half dozen carious teeth extracted at our behest, or commence a thousand dollar orthodontal job at once, in order to

retain us as her child's medical adviser? Which of us can honestly say that he has no child in his practice with frankly undesirable tonsils or obstructive adenoid vegetations,—or with a marked astigmatism uncorrected by glasses, or with some other gross error plainly discernible for him who runs to read,—which he has never suggested be corrected because, forsooth, the parent has never directly asked his counsel in the matter? How many of us ever urge protective work for the children of our families,—or need more than the fingers of one hand on which to count the number of families, or even of individuals, that come to us in what they believe to be good health, for a periodical "looking-over?"

In a word, then, this paper voices a plea for four things. First, a complete, detailed, recorded history, and physical and mental examination, of every child within the reach of every practitioner, general or special, who has to do with children, either in private practice or in dispensary work. Second, a clearly written out, simply worded, summary of the child's condition, with definite, comprehensive recommendations as to his future management. Third, a campaign of propaganda of the very best sort,—the person-to-person, doctor-to-mother, "won-by-one" kind,—to improve the children that we already have, leaving it to the eugenist to provide us with better ones in the future. And fourth, a periodical re-examination and checking-up of results, to show the easily demonstrable improvement that such work is bound to produce, and to encourage both doctor and parent to continue in the work of betterment.

I believe that most of us have at some time or other been genuinely embarrassed, and actually at a loss as to just how to proceed, when a father or mother has brought us a child with the request that we "give him a complete examination," as the saying goes, to be repeated from time to time,—surely not an unreasonable request, and quite as surely indicative of a spirit that we ought to encourage, not discourage, on the part of the laity. And yet has not every one of us failed to give such a parent the service he desired, and actually discouraged him from returning at subsequent regular intervals, by the plainly evident uncertainty and lack of method or system with which we approached this uncongenial, because unusual, task? How easy it would have been, how eminently simple, to have fostered this advisory relationship, with all of the good that it would have meant to the child, had we but had a definite line of procedure to follow, instead of our usual rather aimless pulling down of eye-lids for anemia and cursory chest examination, with perhaps a request for a specimen of urine, that as a rule ends the seance. We are quick to respond to the call for the treatment of disease that produces symptoms; but as a rule are quite unprepared to look for health, and evaluate it as improvable or not. Some definite procedure, completed by some form of report by which doctor and parent would know just where the child stood, and whether he was improving, stationary, or retrogressing, would have cemented this relationship, and shown both doctor and parent what to stress and what to be satisfied with in their joint

efforts to improve the condition of the child. A few of us do keep weight charts, and a few of our mothers fill out the weight record that accompanies some of the nursery manuals. But much more, in the way of regularly and periodically ascertaining and showing the parent progress in height, chest expansion, general nutrition, orthopedic correction, and a dozen other vital particulars, is essential, if we are to gain and hold the individual child long enough to give him the service that he is entitled to. All of this can be put into readily assimilable form for the parent, in such a way as to make intensely interesting records for him, as well as most valuable data for the observing and directing physician.

Another field in which the child has a right to demand his physician's services, is that of preventive medicine. To the physician whose conscience is on the job, the relation of his little charges to preventable disease is a matter of some serious concern. It goes without saying, I think, in the light of modern medical thought, that there are three diseases whose appearance among one's patients is as reprehensible (theoretically at least) as is the appearance of bedbugs in a household or lice on an individual,—because quite as preventable! These three are, of course, smallpox, the typhoid fevers, and diphtheria. Not a man here but knows how absolutely preventable these are; and yet I should hesitate to ask for a show of hands to indicate how many of us had, during the past three months, done a Schick test, or administered a toxin-antitoxin

protection against diphtheria, or vaccinated a child against smallpox, or inoculated one against the typhoids, on his own initiative, without having been prodded on to it by an alert parent or by an up-to-date school entrance law. How many of us have made the test for protein sensitization in children with asthma, or eczema, or a susceptibility to colds; or found the offending pollen for a youngster with "hay-fever"; or done a urine examination in the case of a rapidly growing adolescent passing through the turbulent period of reaching puberty,—unless the child's parents actually demanded it of us?

So much for our conception of the problem of the pediatrician. I believe none of you will think I have overstated its requirements. Now for an attempt at aiding at its solution. If you will refer to the contents of the little booklet that I have placed in your hands, I shall attempt to show you my own procedure in approaching this rather ambitious task. Exhibit A (Fig. 1) is the backbone of the whole program; a means of recording the careful history, and physical and mental examination, without which the efforts to be alluded to later would be but an impertinence. For while diagnosis follows careful anamnesis and examination, it certainly must of necessity precede everything else, whether of instruction, prevention, or treatment.

So much for diagnosis,—for diagnosis must precede treatment. But, just as truly, treatment must follow diagnosis; and a *sine qua non* of pediatric practice, in

Name
Ref'd byDate
Born
Age

DIAG.

FIG. 1

FAM. HIST.	Father Name Address Business Ad.	Tel. Tel.	Tb. Lues. Malig. Alcohol Neurotic	Mother Miscarriages	Liv. Chd.	Dead				
BIRTH HIST.	Premature Full Term	Labor	Length Char.	Chlor-Insts. Asphyxia	Wt.	By Guess By Scale				
FEEDING HIST.	Breast	Entirely Partially	.....Mo. .....Mo.	Every.....Hours Every.....Hours	Why Weaned					
	Bottle Breakfast	Dinner	Milk	Supper	Water	Sugar Btw. Meals	B's Beer	Oz. Tea	Now Gets Should Get Coffee Sodas	Cal. Cal.
PAST HIST.	Measles Scarlet Diph. Roetheln	Rheum. Mumps C. P. Heart	Pneumonia Pleurisy Pertussis Asthma			Tonsilitis Tons. and Ad. Op. Freq. Cold Gast. Intest.	Ear	Other Dis's Injuries		
PRES. COND.	Stools Vomiting Sleep	No. No. Hrs. in A.M.	Color Char. In P.M.	Consist. In Night		Amt. Amt. Appetite	Odor Odor Cath.	Min.	{ Before Fdg. After Fdg.	
PRES. HIST.	Chief Complaints									
GEN. IMP.	Fat Thin Emac. Atroph.	Well Nour. Poorly Nour. Rather Pale Very Pale	Bright Stupid Responsive Rosy	Alert Sluggish Over-active Lethargic	Firm Flabby In Pain Dyspneic	Intelligent Anxious Nervous	Mongoloid Rhachitic Adenoid			Cry Snores
MEAS.	Wt. Ht.	Circ. Head Circ. Chest		T P. O. P. R.		P Rate Char.		R Rate Char.		
SKIN	Color	Disease	Rash	Char.	Distrib.					
DEVEL'T	Holds Head Up Sits Alone		Creeps Stands	Walks Says few words {		Talks	{ Baby Talk Clearly		Mentality Mental Age	

HEAD	Shape	Font	{ Ant. \ Post	Sutures Craniotab	McEwen's	
EYES	L Vision R Vision	20 20	Ext. Dis.	Strab.	Pupils React to:	L Light R Accom.
NOSE	Shape	Disch.	{ Thick Thin Bloody	Breathing	Adenoids	{ Felt Inferred
EARS	L Hearing R Hearing	Canal		Drum		Mastoid Reg.
MOUTH	Tongue Checks	Palate Pharynx		Tonsils L R	Retro. Phar.	Teeth
NECK	Thyroid Thymus	Glands	Ant. Post.			
CHEST HEART LUNGS	Shape			Groove		Rosary
ABDOMEN	Liver	Spleen		Umbil		Genitals
GLANDS	L Axillary R Axillary	Epitroch		Mediast (D'Espine's)		Inguinal
LIMBS	Contour Epiphyses	Gait Dexterity		Eyes Open Romberg Eyes Shut	L Hip Joint R Hip Joint	L Feet R Feet
SPINE	Motility	Lordosis	Kyphosis	Scoliosis		
		Brudzinski REFLEXES Kernig		Knee Jerk Ankle Clonus	Babinski Tache	

Name
Ref'd byDate
Born
Age

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FIG. 1

FAM. HIST.	Father Name Address Business Ad.	Tel. Tel.	Tb. Lues. Malig. Alcohol Neurotic	Mother Miscarriages	Liv. Chd.	Dead				
BIRTH HIST.	Premature Full Term	Labor	Length Char.	Chlor-Insts. Asphyxia	Wt.	By Guess By Scale				
FEEDING HIST.	Breast	Entirely PartiallyMo.Mo.Mo.Mo.HoursHours	Why Weaned				
PAST HIST.	Bottle Breakfast	Dinner	Milk	Supper	Water	Sugar Btw. Meals	B's Beer	Oz. Tea	Now Gets Should Get Coffee Sodas	Cal. Cal.
PRES. COND.	Measles Scarlet Diph. Roetheln	Rheum. Mumps C. P. Heart	Pneumonia Pleurisy Pertussis Asthma	Color Char. In P.M.	Consist. In Night	Amt. Amt. Appetite	Odor Odor Cath.	Min.	{ Before Fdg. After Fdg.	
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MEAS.	Wt. Ht.	Circ. Head Circ. Chest	T P. O. P. R.	P Rate Char.	R Rate Char.					
SKIN	Color	Disease	Rash	Char.	Distrib.					
DEVEL'T	Holds Head Up Sits Alone	Creeps Stands	Walks Says few words {	Talks	{ Baby Talk Clearly	Mentality Mental Age				

HEAD	Shape	Font	{ Ant. Post	Sutures Craniotab	McEwen's	
EYES	L Vision R	so	Ext. Dis.	Strab.	Pupils React to: L Light R	Accom.
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EARS	L Hearing R	Canal		Drum		Mastoid Reg.
MOUTH	Tongue Cheeks	Palate Pharynx		Tonsils L R	Retro. Phar.	Teeth
NECK	Thyroid Thymus	Glands	Ant. Post.			
CHEST HEART LUNGS	Shape			Groove		Rosary
ABDOMEN	Liver	Spleen		Umbil		Genitals
GLANDS	L Axillary R	Epitroch		Mediast (D'Espine's)		Inguinal
LIMBS	Contour Epiphyses	Gait Dexterity		Eyes Open Romberg Eyes Shut	L Hip Joint R	L Feet R
SPINE	Motility	Lordosis		Kyphosis	Scoliosis	
		Brudzinski REFLEXES Kernig		Knee Jerk Ankle Clonus	Babinski Tachs	

the very nature of the case, is securing the confidence and cooperation of the parent. For it never was considered good form to say to an infant, "Take a teaspoonful of this medicine three times a day, stop worrying, and take plenty of rest and fresh air," as we have so often said to others of our patients. Besides, taking a teaspoonful of anything, any number of times a day, isn't being done in the best families this year, you know. More and more is the tide turning toward the stressing of diet, nursery hygiene, and a rational regimen; and away from measures pharmacopoeal. And these are so much harder to procure than the old dosing measures, that it may almost be said that the children's man must train his own trained nurse, for each of his little patients. We usually, thank God, have the best probationers in the world, in the young mothers who come to us with an absorbing interest that the most intelligent of "probes" entering our hospitals can never hope to possess; but what of the instruction that we are to give them? If the noblest study of mankind is man, as Pope tells us, at least the most intensely interesting textbook for an adoring mother is the little life that she is watching over with such absorption; and we can, if we will, give her our translation of that document in words of one syllable. Not, though, in the form of this rather technical history and physical blank; a transcript of this would be but a farce. It would be unsatisfactory, unadapted to her needs, worse than meaningless to her, as the dullest imagination can readily conceive. For while missing

the most important points, which she should most certainly have impressed upon her, she would undoubtedly make mountains of some of the mole-hills that we might have mentioned in the course of our routine examination. Then, too, why not give Father a chance to know what has been found out, and to cooperate in the campaign of betterment? He is the one who (at least, let us hope!) is going to pay the bill; why not give him something tangible to show for his outlay; something to take away,—yes, and to show to admiring friends, if you will. But just how shall we express what we want them to know about their youngster?

To answer this, I am going to ask you to turn to the first sheet of the booklet (Fig. 2), upon which an attempt has been made to devise a simplified, humanized, words-of-one-syllable sort of translation of the history and physical, adapted to the comprehension of the layman. And in preparing this do not make the mistake of underestimating the ability of your readers to follow you a considerable distance along the paths of medical parlance. Not a magazine today but caters, either frankly or sneakingly, to its feminine contingent; and the lengths to which they go in discussing medical and social problems, bids us beware not to simplify and predigest too minutely, lest we be laughed at for our pains by a mother who does not care to be condescended to, too patently. The left-hand side of the report sheet gives one an idea of what points can advantageously be brought to the attention of the parents, for their edification and instruction,—and, in the

last analysis, for the betterment of our patient, their child.

When, however, we have done this much, we have gone not even half way. What are we going to do about it? What must we do to be saved? Anyone can give destructive criticism; what about something constructive, suggestive, helpful? An attempt to answer this natural demand is made on the right half of the same sheet. Here, opposite each finding, a notation is made of what we would suggest in the way of remedying the defect noted. This is given in full,—where time and space will permit, without losing a sense of the relative importance of things; by a reference to other sources, where this is necessary. For instance, a consideration in detail of one of our mainstays, diet, would be manifestly impossible here; for this, we refer to the diet slip, where, in addition to the specific diet for the time being, some general principles are dwelt upon which should prove of help to a mother, even if she drifts away and is never seen by us again. For a few of the measurements, a comparison has been made (not with the *normal*, for we want to encourage the mother to feel that her child may differ markedly from the average without sacrificing his right to be considered normal), but with the *average* at his age; in order that what might otherwise be merely so many figures will assume a definite importance and meaning in her mind.

Nothing very profound or scientific in all this, you will say, perhaps! And yet, how much more inspiring

REPORT OF

DATE

Age	Average at this age			Recommendations
	lbs.	oz.	lbs.	
Weight	lbs.	oz.	lbs.	
Height	ft.	in.	ft.	
Chest Circum.		in.	in.	
Gen. Nutrition				
Skin				
Development				
Mentality				
Vision	L	$\frac{20}{\quad}$	R	$\frac{20}{\quad}$
Hearing				
Speech				
Teeth				
Tonsils				
Adenoid Tissue				
Glands				
Heart				
Lungs				
Abdomen				
Genitals				
Spine				
Limbs				

to detect and correct some easily and simply corrected defect, that but for us might have handicapped and crippled the chances of the child throughout a lifetime, than to be able to tell a mother, proudly but not altogether profitably, "Madam, your child has a most interesting and rare form of leukemia, of the splenomyelogenous type. Of course, there is nothing that we can do for him except to secure for him the best hospital care as long as he lasts; but it really is a most interesting and instructive case!"

The arresting question which always comes sooner or later in a discussion such as this, to give us pause, is, "But is it practical?" Or is this "all in your eye," cooked up for the occasion? Granting that it is desirable, is there time, in the twenty-four hours of the day, to accomplish all this? And just what sort of equipment is needed for it, if one were to desire to do it?

The first and foremost essential, I should say, is a good, handpicked, personally trained office assistant,—what such a person can do in the way of lifting routine work from one's shoulders is veritably enormous, as you know. If she be twins, with one half of her stenographically trained, and the other half leaning toward the nursing persuasion, so much the better. System will cut down the time and effort required enormously. I venture the statement that half an hour's systematic work will suffice to cover the ground that I have sketched out, very passably, if not indeed thoroughly; and one surely would not begrudge that much time to the consideration of a new surgical

case, or of a problem in internal medicine. It means team-work, of course, with dressing, undressing, weighing, measuring, record-writing and direction-typing done by mother and assistant; but the conception and perfecting of team work is the pleasure of the practise squad,—its execution, the joy of the varsity eight or eleven in action.

The work of checking up progress, outlining further measures, and initiating the steps in preventive medicine that we have hinted at, in passing, ought to be covered satisfactorily in revisits of not over fifteen minutes' length, for routine cases. This allows of dividing one's office working time very conveniently into quarter-hour periods, allotting two periods to a new case (more, if desirable), and one to the ordinary revisit. The use of a leaflet setting forth simply and briefly what protective vaccinations are, such for instance as those issued by some Departments of Health, may greatly simplify the obtaining of Schick test, typhoid inoculation, or diphtheria protection (in the form of mixed toxin-antitoxin treatment). A Pirquet or a luetin will take but a moment. An animal protein or pollen sensitization test may easily be compressed into a fifteen minute revisit. Even a Binet-Simon, if one's material is kept ready for instant exhibition, may be satisfactorily accomplished in a short time.

Another practically indispensable item is a second examining room or space, in order to eliminate that heartbreaking consumer of time, the wait for the undressing and the dressing of the child, while the phy-

sician sits idle and, as a rule, fuming with impatience to get on with the next case. A permanent wooden screen, such as is commonly used in dentists' offices to separate two dental chairs, has in my own case proved a most satisfactory way of obtaining two cubicles, equally well-lighted, and equipped in duplicate with examining table, chair for the mother, and instruments commonly used. Bulkier apparatus, which could not easily be available in duplicate, such as scales, measuring apparatus, etc., can be used in common for the patient in either room, by being placed in the open free space adjoining the cubicles. Some such time-saving arrangement as this is practically indispensable if one is to keep to such an office schedule.

If one can screen off somewhere a small space with a desk for his assistant, much of the routine questioning that goes to make up an adequate history may be satisfactorily covered by her, thus saving another considerable fraction of time. The history sheet then comes to him partially filled out, and requiring but the special leading questions that he desires to ask in order to follow out the lines that he wishes to explore, without wasting his time on work that can be done quite as well by a clerical worker as by a physician. A bright office assistant can be trusted to handle this part of the work must tactfully, if she be of the proper type to begin with, and is then carefully instructed. This is mentioned simply as another step in the attempt to multiply the efficiency of the physician by relieving him

of clerical work that can be done quite as well by someone else.

Another most desirable adjunct is a small room or partitioned-off space, in which one can talk to the mother undisturbed either by the child, or by what is going on in the workroom. Here one can read over to her, or have her read to him, the typewritten directions given her, commenting on and explaining them to her the while. If the child is an infant, it should be left outside with the nurse for these few moments. Experience has taught us that an attempt to treat the runabout child the same way, always means simply riding for a fall. So we have taken a tip from child psychology, and equipped the end of this confidence chamber farthest away from where the mother is to sit, with the most fascinating objects of interest that we could find,—which were, of course, those that had stood the acid test of inspiring continued interest in our own nursery. A few Montessori cylinders, buttoning frames, and metal insets, a set of tiny mountain furniture light enough to be lifted and moved about easily, and a particularly fascinating representative from the Humpty Dumpty Circus, never fail to arrest the attention of the child who enters the sanctum,—and gives us more than the necessary few minutes of conference with the mother that we need in order to drive home what we may want to impress upon her.

We have read much, of recent days, in the *Journal of the American Medical Association* especially, of the

requirements that should be demanded of the practitioners of various specialties,—eyes, ear-nose-throat, etc. The respective sections have considered the matter at some length. Perhaps this paper should not close without at least touching upon the question as it concerns the field that we have tried to map out. What can fairly be demanded in the way of preparation for this sort of work? The question seems an eminently practical one, in view of the fact that postgraduate teaching of the specialties is already being done on this side of the river; and must increase enormously, as soon as the plans for making the metropolitan district the teaching medical center of the world begin to be put into effect, unless we are to lag hopelessly behind the rest of the greater city.

I think that we can reasonably ask for an average familiarity with the newest and best thought in that part of the great body of internal medicine set apart under the heading Pediatrics. Then at least a bowing acquaintance with half a dozen of the special branches would seem essential,—enough, that is, to enable one to detect defects in his patients referable to the various systems, and to allocate them to the proper agencies for their correction. Such allied branches are dentistry, orthodontia, ophthalmology, ear-nose-and-throat, speech defects, mental retardation, (at least to the extent of administering and interpreting a Binet-Simon or a Terman), and, of course, orthopedics. All these, or most of them, could be given the graduate student in Pediatrics along with the fourth year medical stu-

dents, at least to the extent of the smattering of the specialties that we attempt to give the undergraduates in their last year. He must pick up for himself, by actual experience in his own locality, and by sedulous visiting and "mixing," the special virtues and the special shortcomings of the different public and private schools, as well as of those special schools designed to meet special conditions. He should be familiar with the general principles of the Kindergarten and of Doctor Montessori's newer educational methods, as well as with other educators and their work. He should know Boy Scout leaders and the special characters of the troops in his vicinity,—should be on terms of friendship with Y. M. C. A. workers and familiar with their equipment,—should have a working knowledge of the strong points and the limitations of social workers and social agencies. Much of the education of mothers along the lines that we are speaking of is being carried on today in the monthly periodical press; for instance, Emerson's work can be understood perhaps better by a reading of the August, September, and October numbers of the *Woman's Home Companion*, than by hunting through the files of the medical library; so that at least an idea of the help that he can get in this way may fairly be demanded of our pediatricist.

A discouraging prospect, do you say? Yes, indeed,—unless a vision of the opportunity for service is not so wonderfully stimulating as to cause us to forget the inadequacy of our preparation for the task, and think instead in terms of the help we may bring to a younger

generation, to do the things that we of this generation can never do, and be the men and women that we can never be, just because in our childhood this conception of preventive and corrective medicine was but an isolated dream. It is for us who are making children's welfare our lifework, to be among the foremost of those who are bringing this dream down out of the clouds, and making it a definite, concrete program of betterment, all over this broad land of ours, and in the countries overseas. Is not the prospect, rather, an encouraging one, stimulating us to be constant seekers after the newest, only where the newest is the best; making us hold ourselves ever ready to reject previously treasured tenets, and embrace newer and better concepts in this as in all other of the divisions of that great art that we profess and practise?

MEDICAL ASPECTS OF NUTRITION WORK¹

(Reprinted from *Hospital Social Service*, V, 1922, 317)

I have been surprised to learn that there are Nutrition Classes in New York which are attempting to function without the help of any doctors whatsoever. On expressing my very great surprise that a work of such technical difficulty should be attempted by any-

¹ Read before New York Nutrition Council, New York City, March 30, 1922.

one without medical co-operation, the fact was brought to my attention (though I was already only too sadly familiar with it) that the supply of physicians who have so far considered this work worthy of their interest and assistance, is so lamentably small, that it has been found practically impossible to staff all the Nutrition Classes that are functioning today—let alone those that we know will be in existence tomorrow. All of which simply reminded me of a point made by Emerson of Boston, the father of this movement as we know it today, when he talked before the Kings County Medical Society in Brooklyn a year ago. He told our medical confreres on that occasion, that a diagnosis of obscure endocrine deficiency or polycythemia never failed to intrigue the average medical man; while such a diagnosis as the practical but humdrum one of "too much picnic," "late hours at the movies," or "too much candy," left him cold and unmoved. Until we pediatricists can deliver a larger attendance at such meetings as this, it behooves us to "sing small" in criticism of social workers who go ahead in this most urgent work without the medical backing that we feel is such an essential part of the work.

As I look at this problem of malnutrition in children, that we are all agreed is best met by the instrumentality or agency that we call the Nutrition Class, I like to sum up the problem and its attack as follows:

- Malnutrition comes from either (a) a faulty health habit; or (b) a physical defect.

Remove (a) the faulty food habit; or (b) the physical defect.

Result: The child comes up to the weight which is normal or average for his age and height.

Sounds simple, doesn't it? And yet, as those of us who have worked on the problem know, it often seems about as easy to cure malnutrition as it is to cure cancer—no more and no less so.

It is of course the case that in very many instances it is only necessary to stop the child's candy, rearrange his sleeping time, or decrease his school-strain, if a faulty health habit is the cause; or to remove infected tonsils, correct eye-strain, or cleanse the Augean stable of a filthy mouth, if a physical defect is the causative factor; in order to achieve a lasting, striking cure. This can frequently be done without any elaborate Nutrition Class machinery at all. *I. e.*, without doctor, nurse, or Nutrition worker, many children who are badly underweight can be brought up to normal weight; and if we can do no better, then let us thank God for this much. But if in this way we fail in a great many cases; if the poor little waifs that most need our help fail to get it; then let us by all means so organize our forces as to reach these difficult cases, the puzzling, baffling cases, the ones that without us will absolutely fail of improvement. Let us leave for the moment the ninety and nine that anyone can help; and go out determinedly for the hundredth sheep that no other agency will get,

if we fail him. The family doctor and the children's specialist—the clinic and the children's ward—all have tried to help him, and have signally failed. Nothing will reach him but the best kind of a Nutrition Class, staffed with medical as well as social workers, both trained to the last degree in this highly specialized form of medical and social effort.

This is the kind of Nutrition Class that I want to outline. It is what I believe every one should strive to attain to, and what I feel quite sure none has ever yet succeeded in becoming. I have worked for three years toward this ideal, and sometimes feel as if I were farther from the goal now than I was when I began. And yet, I know that this is simply because I see so much more clearly now what that goal should be than I did when I began the work.

I shall not allow myself to even hint at the physical defects, or the forms of mental retardation, or the phases of tuberculosis, that so often prove to be the *raison d'être* of the malnutrition of the children that come to us. All these three classes of cases, while we can not expect them to be diagnosed by the social worker, should at least be suspected by the medical attendant. But there are many physical defects that it is not fair to expect even the pediatrician, unaided, to diagnose, much less cure. He must have at his command all the resources that are available to the attending pediatricist in the hospital of which his class is an integral part; and he must use them far more intensively than does the attending pediatricist, by so much as his

task of detecting incipient defect and disease is harder than that of diagnosing frank, gross disease in the wards. There should be available a routine eye examination, including refraction, for every one of his children. Ears, throat and nose should in every case be subjected to the purview of the skilled oto-laryngologist. A Binet-Simon or a Terman test should be available, to determine the mental age of each child, at least to the extent of knowing whether he should be referred to the neurological department or to the special class for retarded children. Spine, chest, and feet are deserving of the appraising eye of the orthopedist. Clinical laboratory and X-ray facilities are far more urgently needed here to detect the incipient defect than they are to confirm the diagnosis of the bed-patient in the ward. If he has an asthma of protein origin; if tubercle lurks somewhere in his body; if he is susceptible to the development of diphtheria; then appropriate skin tests must be applied that will make such a diagnosis possible, and steps taken to remedy the dangers discovered. Not only diphtheria toxin-antitoxin, but typhoid inoculation and smallpox vaccination must be administered. For of what use is it to salvage this little waif at such painstaking cost, and then lose him by such an easily preventable disease as smallpox, or diphtheria, or typhoid fever! If we are not to use these prophylactic measures here, then where in all good conscience *are* we to employ them?

All this is Utopian, you say? Not altogether so; though, as I candidly confessed above, our efforts at

the Brooklyn Hospital are so far from measuring up to this standard that we frankly admit that at times we can hardly even visualize our ideal, much less come near to attaining it. But here at least is an organization planned to meet the need outlined. If anyone else working at the same problem can get a hint from our experiences that will aid him in his work, the purpose of this paper will have been achieved.

Our foundation, basis, or point of departure is the orthodox Nutrition Class, meeting Saturday morning. It has its doctors, nutrition social service workers, and volunteer aides; and the familiar individual wall charts, with stars for health tasks accomplished, as determined by an individual interview in the case of each child. It differs from the usual in consisting of three divisions, namely: a Cardiac Class; a "Health" Class, which is sort of high school into which are graduated, with appropriate ceremonies, children who have gone "over the top"; and a Nutrition Class proper. In the latter, in order to spread out as far as possible the efforts of the doctors, (for, as was hinted above, and as you all know, doctors who are unscientific enough to enjoy *keeping* children well, instead of only *curing* them when they get sick, are not over numerous), the routine interviews are conducted by specially trained volunteer aides who have shown special aptitude for this work. They refer to the doctors any children whose gain has not been satisfactory; and any others who for any reason they think he ought to see. The doctors are left fairly free to handle

this phase of the work, as well as other things that come up in the course of the large number of cases handled, by the plan of having all new cases, with their time-consuming examinations, admitted on a different day entirely, when routine work is not attempted. Weekly health talks for the mothers assembled here, as well as for whatever children happen to be disengaged, aid greatly in health propaganda; and the monthly illustrated feature, which is occasionally a real "movie," has its own never-failing appeal.

Ordinary cases of malnutrition are thus well taken care of, and as a rule cured, if their attendance can be kept up. They are then graduated into the Health Class, where a food and health propaganda is carried on by trained workers from a neighboring domestic science training school. This obviates the necessity of discharging cases which have gained up to normal weight for age and height—so often merely to admit them later, when the stimulus of competition has been removed, with all the work to be done over again. This aids us in making good our slogan, "No child is ever to be discharged from the Brooklyn Hospital."

For the extraordinary case, however, the above-described machinery is not sufficient. It is for him that we are developing the liaison with other departments, as well as the special clinics that cluster about the Nutrition class as a nucleus. In the first place, it has long been the rule at the Brooklyn Hospital that both the clinical laboratory and X-ray facilities shall be quite as readily available for the out-patient as they

are for the in-patient, and of course these routine diagnostic aides often demonstrate perfectly simply the causative factor in a malnutrition case, that might otherwise never even be suspected, much less proved. A volunteer aide who did some work in psychology while in college, conducts Binet-Simon tests with sufficient accuracy to call attention to children with gross mental retardation, who can then be referred to our neurological brethren for closer study. Sometime we hope to inveigle the chief of this department, who likes psychoanalysis, into establishing a behavior clinic as an adjunct to our work. Once a week, the associate attending otolaryngologist visits us, and is gradually going over every one of the children and charting the condition of ears, noses and throats, as well as recommending for surgical correction any defects which demand this. Incidentally he is getting an idea of preventive work with children which cannot fail to be of value to him, as well as to his department within the hospital walls. A similar arrangement with one of the oculists who is especially interested in children's eyes, is pending, which when completed will mean a routine eye examination under atropine for every child whose parents are sufficiently interested in this routine protective measure to give the necessary consent. Our liaison with surgery and dermatology, while less intimate, is still quite close; as we share the benefits of the interclinic consultation slip system, which has for years been highly developed throughout our whole O. P. D. Our relations with the Orthopedic Department are of

course of the most intimate, as their problem is so largely one of combating malnutrition in their little patients; while in no small number of our cases our routine examination demonstrates an orthopedic condition as the causative factor.

The dental problem has had to be attacked somewhat differently, owing to the difficulty in securing dentists who can and will give of their time, which is with them so definitely a gift of a money equivalent. Our first step here was securing a general "mouth toilet," or dental "prophylactic treatment," in the case of every child whose need seemed at all crying—to be followed as soon as practicable by a routine procedure of this sort in the case of all the rest. During the cleansing treatment, the condition of all the teeth is charted graphically by one of the aides, who makes at the dictation of the dentist a notation of work recommended, in addition to filling out the dental chart. Our next step was taken quite recently. It consisted in a sort of dental "auto da fe," or Herodian slaughter of the innocents, in the form of an extraction party. As many cases as could conveniently be rounded up and attended to at one session, were asked to have permission slips signed by their parents. One of the professional anesthetists from the operating room came over to the dental room of the clinic; and the pile of wretched carious teeth that our dentist accumulated within a very short time and with a minimum of pain and apprehension, delighted the hearts of the Nutrition personnel, who

visualized increased weights and improved morales to the top of their bent.

One special room is devoted to vaccinations, Schicks, toxin-antitoxin and typhoid inoculations, Pirquet reactions, and (as soon as we can persuade an enthusiast to give the time, and the hospital to furnish the materials), protein detection and desensitization. We are especially proud of our priority in this preventive work.

Our liaison with the Obstetrical Department is necessarily indirect—by way of the Baby Health Class, to which newly made mothers are referred with their babies when they return for examination at the end of their six weeks' postpartum. Children from this class should of course graduate directly into a "Pre-School Age" Department; but as an insufficiency of social workers has so far prevented our undertaking this very latest arrival among the recognized forms of child welfare work, we occasionally feel that we must take over a special case from the Baby Health Class, insofar as directing the mother is concerned. Of course the psychological appeal of the Nutrition Class cannot be employed at so young an age.

One other phase of our work should be mentioned, before concluding this very hasty and inadequate sketch of the "medical aspects of nutrition work." This is our relationship to the general daily medical pediatric dispensary work, and to the pediatric ward. Our ranks are recruited for the most part from the ranks of the former; and it is rather significant of the success of

the Nutrition Class in reaching a group of cases otherwise not helped by treatment, that we are constantly begging off from new admissions because of inadequate medical help, rather than asking for more cases. Personally, I believe that every child discharged from the ward should be transferred as a routine thing to the Nutrition Class, and thence allocated to his proper subdivision of its activities, eventually landing in the Health Class, where he should be welcome until he reaches the age at which the hospital declares him ineligible for any further activities at the hands of the Pediatric Department. When such a state of affairs obtains, we shall have reached a stage in preventive pediatrics which can well be made to serve as a model for preventive medicine at all ages; and it will be to the new conception inaugurated by the Nutrition Class Idea, that such a consummation may be attributed.

THE NUTRITION CLASS: ITS VALUE TO THE PEDIATRIST¹

Probably no one movement has appeared in the last fifty years more pregnant with possibilities for the betterment of the children of this country than what I have called, for want of a better term, the "Nutrition Class Idea." This whole movement has occupied such

¹Read in the Section on Pediatrics, Southern Medical Association Fourteenth Annual Meeting, Louisville, Ky., Nov. 15-18, 1920.

an important part in the pediatric literature of yesterday and today, and is so familiar to every worker along child health lines, that I shall not attempt here to go into details with regard to the running of a nutrition class. In order, however, to bring the matter clearly before our minds, I shall briefly sketch the underlying principles on which the work is based.

The first of these principles is the recognition of the existence of a clinical entity, malnutrition, with well understood etiology and pathology, and definite signs and symptoms, some of them pathognomic of the condition. Chief among these is marked deficiency in the weight, in relation to the age and height. The second principle is the recognition of a twofold etiology. That is, malnutrition is due either to some physical defect, often to be discovered only after a complete, exhaustive physical examination; or to some faulty habit of life, to be discovered only by the aid of an equally exhaustive history-taking, and skilled home visiting by a trained social service nurse, known technically as a "nutrition worker." The third principle consists in the application of the old familiar class method to the therapy of this comparatively recent arrival among the known disease entities.

The recognition of the existence of this condition of malnutrition goes back to time out of mind, when pre-historic grandmothers called youngsters "puny," "peaked," "sickly," "failing," "pining," "declining," or any one of a dozen other descriptive adjectives. The earliest scientific recognition of the disease was by

Newman, of England, at the time of the Boer War, when three out of five of all the recruits for the British army (and remember, these were not drafted men, but volunteers, anxious to go, and so presumably in good health, and fairly young and active) were rejected because of the presence of physical defects, most of which were recognized as being of a sort that were preventable during childhood. An attempt was made to combat this by the wholesale institution of school lunches throughout England.

The history of the application of the class method to the treatment of malnutrition is equally interesting. Starting with the age-old custom of employing the class method for teaching anything, we find Minor, of Asheville, in 1890, applying the class method for instructing ambulant private cases of tuberculosis in the regimen essential to their treatment; thus for the first time, in this country at least, employing the class method in the treatment of disease. In 1905, Pratt, in Boston, as part of the work of the Emanuel Movement, had a class for instructing patients with tuberculosis. In 1908, Emerson, of Tufts College, Boston, the pioneer in the recognition and treatment of malnutrition in this country, picked out fifteen of the worst cases of malnutrition he could find from the Boston City Dispensary, and grouped them in what was to become the pioneer nutrition class. Following him, came Charles Hendee Smith, who became interested in the problem in 1914 and '15, while at the Vanderbilt Clinic, New York; and in 1916 commenced in the Outpatient De-

partment of Bellevue Hospital the first nutrition class to be started in that city.

After him came the deluge of the rest of us, until today every corner of the land has awakened to the presence of a vast amount of wasted child-power. Not the least potent of the agencies concerned in bringing all this about, have been the disclosures of similar conditions by our army surgeons and the examining physicians of our draft boards, which have driven home the surprising findings of wholesale preventable conditions, allowed to develop in childhood, among what we had fondly considered the flower of our young manhood.

The conduct of a nutrition class, as you know, is about as follows: One or more children's men examine completely all children applying for admission to the class, or referred to it by social workers, other physicians, or the pediatric ward of the hospital itself, which frequently turns over all its children on discharge to the class for the further attention necessary to complete their cure. The pediatricians should, if possible, be able to supplement their examinations where necessary by calling in other specialists, such as eye men, neurologists, orthopedists, dentists, etc., usually available on the staff of the hospital in connection with which the class is being maintained. All physical findings, together with those of a trained history taker, are noted on a very comprehensive blank form, which should cover every phase of the child's physical and mental life and health. A summary of all defects found, including the number of pounds below

what is normal for a child of such age and height, occupies a prominent position on this blank. A tag with actual weight, expected weight, and the "Rules of the game," is given each child. A large demonstration wall chart is then started for each child, on which a worker charts his weight each week. On this can be pasted variously colored and shaped seals, stars and labels, each a recognition of some point in the suggested health program that the child may have carried out during the week preceding, such as the taking of the daily nap, the morning or afternoon additional lunch, the washing of the hands before each meal, the twice-a-day brushing of teeth, etc., which are outlined as necessary by one of the doctors in the little health talk that is part of each weekly session. At these weekly revisits, each child is weighed and his weight charted, seals are awarded for satisfactory reports brought in, lists of foods taken are criticized, and comments or praise are handed out by doctors and volunteer aides, usually girls who are recruited from among those who gained some little experience in Red Cross work during the war. Much of the routine, non-medical, and clerical work can best be done by these aides, who thus "spread out" the available medical talent to its greatest possible extent. Especial praise is meted out to youngsters who have had the pluck to have any physical defects removed, as having tonsils and adenoids operated on, bad teeth treated or removed, etc.; for it is recognized that if malnutrition is due to some remediable defect, it will probably persist until this

defect is removed, all other measures meanwhile being unavailing to accomplish a cure. In our nutrition class at the Brooklyn Hospital Children's Clinic, we make a point of giving absolutely no medicine, so that we can properly evaluate the improvement made by those enrolled. The old familiar so-called "tonics," iron, hypophosphates, arsenic, and cod liver oil, are especially anathema to the man who has followed the results of this method. I shall not detain you to enumerate the striking changes brought about in special cases; and the general improvement accomplished in the ordinary case. The very recent literature is full of data that will well repay careful study, and will bring out these facts beyond all peradventure. Donnelly and Ruderman, in a recent paper before the Medical Society of the County of Kings, which will appear shortly in the *New York Medical Journal*, have recorded the results of our class in a preliminary report of its first six months; and similar experiences at the hands of others who have followed out the work may be found in almost every issue of the pediatric press. Suffice it to say, and I know that no man here who has added a nutrition class to his hospital service will dispute it, that no one who has once seen the working out of such an experiment, will ever be satisfied to carry on work among children without this wonderful and powerful addition to his armamentarium.

The idea of the general, searching physical examination, such a vital part of the nutrition class, is no new one. Life insurance companies, life extension and

health institutes, group medicine and diagnostic clinics, and the army and draft board examinations, each has contributed its quota toward making this eminently sensible procedure an eminently popular one among the laity, who have been quick to see its potentialities for good, and to want it for their children, even if they are lax about getting it for themselves. Perhaps the commonest and most widely applied example is the school examination, though its absolute powerlessness to accomplish the correction of the errors that it points out, is proverbial. This was well brought out by Dr. Lord, City School Physician of Asheville, at Charlotte last year.

The idea of the nutrition worker, by whose field work faulty home conditions are discovered and the instructions of the doctors with regard to the correction of the faults of daily living are reinforced and made effective, is simply an adaptation to the needs of this kind of work, of the conception of the social service nurse, first made familiar to the medical and hospital and social world by Cabot, of Boston.

Gain in weight is taken as the arbitrary criterion of the success of the nutrition class in the individual child; and yet it is not arbitrarily taken, either. For the underweight child who gains in weight always shows, hand in hand with his gain, such other signs of improvement, that the most captious critic cannot deny that his increased weight is a sign of his improved general condition. Emerson, in a talk that I had with him in Boston recently, went so far as to say that if

an underweight child fails to gain back to normal weight for his age and height in three or four months under the regimen of the nutrition class, this is in itself a definite indication either that he is not carrying out the rules of the game, or that the pediatrician has failed to discover and to remove the underlying cause of his condition. To the man who is actually doing the work, this is rather a hard saying, for frequently the gain in weight is by no means as easy to obtain as one might think. But I believe it is a pretty fair assumption that a failure to gain does imply some failure either in diagnosis or in carrying out treatment.

But our subject today is the value of the nutrition class to the pediatricist, and in this we must include its value to him in his private practice and in his public health work, as well as in his clinic and hospital relationship, which we have already considered. I must confess that for a year following my full conversion to the nutrition class idea, and my adoption of it as the pet department of my pediatric clinic at the Brooklyn Hospital, I lagged sadly behind in applying it in my private work. The class feature, such an outstanding part of the work, seemed utterly unfitted to the demands of private work in the office. And yet, here we were getting results in the clinic, with free patients, which were denied private patients whose parents were paying for our services. This seemed a paradoxical state of affairs, to say the least. Parts of the scheme were of course already embodied in private work, such as the complete examination supplemented by the ser-

VICES of the appropriate specialist; the routine history taking; the regular weighing and charting of weight where its graphic effect could be had; the elimination of candy and sweets completely, as well as the forbidding of all between-meals nibbling; the insistence upon the daily afternoon nap followed by the three o'clock luncheon; the minute questioning of parent and child to determine what particular points were in need of special stressing. But the uniformly good results that we had come to expect in the nutrition class were not being paralleled in the office; and I coveted just such results for my private patients.

Here again Emerson came to my rescue. He has gone so far as to adopt in his own private practice, at his own office, the machinery and tactics of the hospital nutrition class, gathering together there a group of children and mothers, for the group application of these modern methods of treating malnutrition. For this work he utilizes his trained clinic nutrition worker, who prepares each case for him in the office, just as she is accustomed to do in the Out Patient Department. In other words, he has realized the great basic truth that "mothers is mothers," whether they be rich, in moderate circumstances, or poor; and that what will work with them in one place will work in another. He has found that the theoretical objections to such a plan disappear in actual practice; that competition, friendly interest, and neighborliness are aroused; and that frequently the more fortunately circumstanced mother may gain most practical points and helpful suggestions from

the one less happily situated, when it comes to the all-important question of what each can do for her child.

Let me cite the type of case in which this nutrition class method has proved most helpful, in my experience. It is perhaps seen and recognized more frequently in referred or consultation work; though it seems to me it must be commonest in the practice of the family doctor, who until this new idea came to his aid was almost helpless in curing such a case. In my summer work in the mountainous resort country of western North Carolina, I see many, many children who are sent up to me with a diagnosis of "malaria," a diagnosis made perhaps by the family doctor, but certainly made by the family, for if the doctor does not make this diagnosis, the family or some kind neighbor does! The history of the child's having been bitten by a mosquito is always present. He is peaked, puny, has occasional attacks of fever, sometimes accompanied by chills. Who, in the presence of this damning chain of circumstantial evidence, shall have the hardihood to fail to make the diagnosis of malaria, or who shall look further for any other cause! These children have been veritably fed on calomel and quinin. In fact, a most intelligent mother who was doing her best to follow directions, said to me plaintively, "But, doctor, how *can* my boy get well, when you are not giving him any medicine?" The fact that a whole bureau-top full of bottles and pills, faithfully and continuously administered over a period of years, had so far failed to cure him, had never shaken her faith in her old diagnosis of malaria, or her

old friends, calomel, gray powder, castor oil, and quinin. When this new thought was presented to her, she was quick to see the point, especially after a day of light diet, packs, and rest in bed, without any drugs, had brought him to the end of his attack, something which had never occurred before without the exhibition of an appalling array of drugs. Failure to find the offending plasmodium is of course of no help in ruling out the possibility of malaria; because enough quinin to make its detection impossible, has almost always been given previously. Attempts to gain the faith and the co-operation of parents, to the extent of treating these cases without either castor oil, calomel, or quinin, and simply by the regimen of the nutrition class, are at first ludicrously ineffectual. They tell us, "Oh, you doctors from the mountains, or from the city, as the case may be, don't understand malaria. Why, my child is simply full of malaria!" Or, "But doctor, what must I do to make his bowels act freely?" In acquiring the necessary confidence and co-operation, mothers of children who have already been through this experience, and have seen these malnutrition cases clear up without a grain of anti-malarial medication or without a drop of cathartic, prove a tower of strength. And the class method, with its enthusiastic mothers and its healthy children, whose gains are visualized by their graphic charts, is almost an essential to the children's man in dealing with such youngsters.

Careful questioning, or frequently even the most

cursory observation, for that matter, will usually demonstrate the fact that these children, though frequently from the very best families, have habits of diet and regimen that are simply appalling. Their food is almost invariably smothered in sugar ("he wouldn't eat anything, if I didn't cover it with sugar!") They are perpetually eating and drinking and chewing between meals,—candy, chewing-gum, sweet drinks, coca-colas, ice cream cones, being among the worst offenders. They spend their evenings at the "movies" or playing late in the streets, thus adding eye-strain and insufficient sleep to their vicious irregularities of diet.

In addition to castor oil, calomel and quinin in plenteous amounts, these children are certain to have been dosed up on so-called "tonics" of all sorts. Tonsils and adenoids may be large and menacing; or they may have been well or poorly removed. In spite of their good social standing, their teeth are probably a crying scandal, a trip to the dentist being beyond the daring of the bravest relative, who dreads the storm it would cause!

An example of the adaptability of the nutrition class idea to the needs of community welfare and public health work, and its power to vitalize the proverbially impotent school examination, by combining Federal, State, county, town, and private agencies, is being brought out in one of the smaller towns of western North Carolina. Last fall, the Parent-Teacher Asso-

ciation here started a campaign for a school examination of three hundred odd children in the Union Public School, something that had never before been attempted. This was planned according to the outline furnished by the North Carolina State Board of Health, and embodied on a card, worked out most carefully by Dr. George M. Cooper, Medical Director of School Examinations. It was carried out under the direction of the Association itself, which also furnished volunteer aides in sufficient numbers to conduct the weighing, measuring, etc. Each teacher did the clerical work for the children of her own class. A trained nurse and a Y. W. C. A. worker home on leave from the devastated area in France were pressed into service, for the search for pediculi. The one dentist of the community made a most careful, detailed examination of the teeth, charting his findings in each case. The doctors of the town, assisted by the full-time County Health Officer, covered the strictly technical, medical part of the examination. The State Board of Health, after receiving an estimate from the dentist, plans to retain him to do the work of the limited nature attempted by the State, namely, cleaning, extracting, and putting in simple fillings, accompanying his work by a running commentary of instruction on the care of the mouth. Such dental demonstration work, done elsewhere in the State, has never failed to arouse sufficient interest in both children and parents to induce them to pay for whatever more elaborate work is necessary to complete the job.

The State also plans to provide for the relief of the worst mouth breathers, by some modification of its policy of creating emergency tonsil and adenoid clinics. These are prepared for by the follow-up work of their specially trained social service worker, who visits the parents of these children in their homes, and prevails upon them to allow the work to be done. Other specially emergent cases are being placed with the appropriate specialists in the neighboring medical center of Asheville, through the activities of the full-time County Health Officer, who has access to all the records, and can assign such cases for treatment at reduced rates, using county funds placed at his disposal for those who can afford nothing. A scale has been installed as a part of the permanent equipment of the school, and the whole teaching force has become committed enthusiastically to the monthly weighing plan. All weights in each class are recorded on a class room weight record chart, published for such use by the Child Health Organization, so that he may read who runs. Next spring, at the close of the school year, these will be worked over with the aid of the County Health Officer, to find what children are below their expected weight for age and height, or have failed to make the proper monthly gain, as indicated by the tables at the bottom of the wall chart. These children will be urged to join the nutrition classes that are to be maintained during the vacation, and their gains in weight and general well-being will be compared at the end of the summer with those of their comrades who have not had

such special attention. In addition to the improvement to be derived by the children, this will give us an excellent opportunity of evaluating the results of the nutrition class regimen, by comparing this group with a similar group who have been left untreated.

As a prerequisite to the intensive work to be done in these nutrition classes, each of these children will have a very careful history taken by an experienced worker, later verified and amplified by a home visit. We hope eventually to have a permanent school nurse, supported by the local Red Cross Chapter, who can do this work during the summer, when her school duties leave her free. The child will then be examined from top to toe by a pediatricist. This examination will be supplemented, when indicated, by further special study at the hands of the oculist, the ear, nose and throat man, the orthopedist, the dentist, and the laboratory and X-ray man, who go to make up the staff of a diagnostic group for children that is being organized for work during ensuing summers. The child will then be assigned to the nutrition class nearest where he lives, whether that be in the school house itself, or at one of the three neighboring summer conference centers. This will throw him in contact with children from wealthier surroundings, which it is believed will be of distinct advantage to him and to them. We do not like to attempt to classify folks into different social strata in North Carolina, in medical work. Here all the forces of the nutrition class that we have been discussing,

medical, social, and personal, will be brought to bear upon him. Follow-up visits will be made by the nutrition worker to his home, to see that he takes his daily afternoon nap and afternoon luncheon, and his daily quart of milk. She can also find out whether he is obeying the statute forbidding any sweets whatsoever, and any bites between his four stated meal times; and whether his mother is preparing properly the proper food for him to take at those meal times. Unless all previous experience fails, we shall have a most instructive and stimulating report to make at the beginning of the next school year. It is hoped that a year-round nutrition class, as well as an outdoor class for delicate and backward children, may become an added part of the school equipment, which already boasts one very valuable nutritional feature, the hot school luncheon.

The time has gone by, never to return, when the field of pediatrics can be conceived of as being that small portion of the province of internal medicine fenced off by the establishment of an arbitrary twelve-year age limit. As long as it was that, with its patient looked at as a diminutive adult, and therapy based upon a fractional rule, there was much to be said for the view, still prevalent among many general practitioners and internists, that there is no such specialty as pediatrics, which they claim as simply a small part of their field. Unless the pediatricist can look upon the child from a standpoint far removed from this, one

which takes into account every factor, mental, educational, postural, emotional, nutritional, temperamental, which differentiates the child from the adult, then there is in truth no excuse for his existence. The true pediatricist must concern himself with the medical side, it is true; but that is perhaps the smallest part of his labors. He must be able to evaluate the harmful effects upon the little organism, of malocclusion, of faulty posture, of defective mentality, of under-nutrition, of wrong and unsympathetic attempts at discipline, of false educational efforts and false social values, of eye-strain and soul-strain, if you will; evaluate them after he has first diagnosed them, and then be able to bring to bear the factors that shall correct them, in order to bring about that highest consummation, "sana mens in corpore sano." Call it preventive medicine for children, if you will; but go farther and call it constructive medicine. This is what every pediatricist worthy of the name has dreamed of; but we all know how hopelessly huge such a conception of his duty must be, to the man who is trying to minister to any number of children. The nutrition class, as I conceive it, is the first definite effort, on any scale large enough to make it practical, to apply this ideal to the children of our land. It is the first workable and working effort to co-ordinate all the scattered forces, that we know in the abstract should be brought to bear upon each child, and yet that are so hard to exhibit, when it comes down to the treatment of the individual, concrete case, the child before you.

THE NUTRITION CLASS IDEA—A RETROSPECT AND A PROSPECT¹

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Our social service chief has given me this opportunity of coming before you again, to tell those of you who have not yet attended our Saturday morning Nutrition Class sessions, just what they are and what you are going to make it possible for us to make them this coming year.

You are all more or less familiar with the broad facts underlying the Nutrition Class idea—easily the most fascinating of all the present day efforts that combine medical and social work, and yet still in its infancy and relatively unfamiliar to those who need only to become cognizant of it, in order to become enthusiastic over its possibilities and its accomplishments. Roughly, the facts are these: One-third of all the children in the United States are at least 7%, and many of them 10% and even much more than this, below the weight that is normal for their age and height. This condition, with all that goes with it of lowered resistance, mental retardation, etc., cannot be remedied until the underlying defect that is contributing to it, such as diseased tonsils and adenoids, carious teeth, etc., has been discovered and remedied. For the detection of

¹Read before the Social Service Committee of the Brooklyn Hospital, May 25, 1920.

all of these defects that may exist in a given child, a complete, searching physical examination is necessary. It is comparatively easy to find out these defects, but very, very hard to bring to bear sufficient and suitable pressure to have them removed. Given their removal, and the institution of a proper health regimen and an adequate diet of suitable character, practically all of these children can be made to gain up to or beyond the weight normal for their age and height. Failing these prerequisites, so-called tonics, like iron, cod liver oil, "blood medicines," etc., are powerless to produce this gain, and are worse than useless, in that they upset digestion and destroy appetite, instead of doing what they are supposed to do. And, in conclusion, the class method, long ago found most successful in meeting the tuberculosis problem, is the most rational and satisfactory way in which to cope with this great menace of undernourishment.

In our own hospital, a staff consisting of a social service expert, 3 doctors, and from 1 to 5 volunteer aides has assembled in the dispensary building every Saturday morning, since the new department started out last fall, to work upon as many of the 80 children enrolled among its records as chanced to appear each day. These children were supposedly well, but were all far below par in weight, physical well-being, and stamina. Many or most of them had been treated by family doctors and clinic doctors, without much improvement, if not with steady loss. Each of these children has been carefully interrogated as to his past

history by a volunteer aide, and a careful record of the facts made. Each has been given as searching, minute a medical examination as we have been capable of performing. Each has had his physical condition fully charted on the blank you have before you, and the defects thus discovered grouped in the lower left-hand corner of the sheet, together with the doctor's recommendations for their improvement or cure. As many of these defects as we could persuade the children, or their parents, to have corrected, have been removed. Each child has been instructed, by every worker and in every way and from every angle possible, in the means of bettering his health. We have stressed the importance of proper food, cleanliness, care of the teeth, daily naps, frequent small meals rather than fewer heavy ones, fresh air, and everything else that we could conceive of. Appeal has been made to their fondness for rewards, their love of competition, their pride in themselves and in their records, with the most encouraging response. Every one has been visited at his home, at least once, by the nutrition worker. And every one of these youngsters, we truly believe, is a better embryo man or woman for the faithful, painstaking work that has been done for him. I need not take time telling those of you who have watched them there, how they enjoy their sessions. Every one of them is far ahead of what he would have been, had he not been a member of the Nutrition Class. And, most significant fact of all, not one of them would or could have been affected to an equal degree by any other agency at

work in this or any other city, for there is no other agency equipped to deal with these undernourished youngsters, with the combined force of medical examination and diagnosis, surgical treatment (where necessary), expert social diagnosis, and boy-scout-like personal and family appeal. And not one single solitary pill or drop of medicine has been given!

Dr. Donnelly, chief of the Nutrition Clinic, is presenting a preliminary report of the results of the work, before the Kings County Medical Society next month^{1,2}. I am contributing to this report a section that deals with the things that we did wrong last year, which are things that we are going to do right, this coming year. I don't want to admit that we did anything wrong, but we did do many things in other than the very best way. For instance, in spite of the warnings of Emerson, who began this work in Boston a number of years ago, we started in without the assistance and guidance of a trained nutrition worker. We never had even the full time of a social service worker. After we had worked Miss T. (who used to sadly admit that she was much more than 7 per cent. underweight for her age and height!) into a nervous collapse, and before our present worker came to us, we staggered merrily along for some weeks without any worker at all, and the number of 1

¹ Donnelly, W. H.: The Class Method of Treating Malnutrition in Children, N. Y. Med. Jour., Dec. 18, 1920. Vol. CXII, 25, p. 973.

² Ruderman, Louis M.: Six Months' Experience with a Nutrition Class, *idem*. p. 976.

visit cases increased in a way that we don't like to think of. Our 3 doctors were completely occupied (or should have been) with strictly medical work, so that the time spent by the children and their parents in the waiting hall was more pandemonium than health propaganda; a golden opportunity thrown away, because of inadequate staffing. We had no printed diet slips or instruction leaflets, and writing out directions by hand, and repeating them over and over again to impress them clearly, is a costly process in time and energy. We might have reached 300 children easily, instead of touching 80 with difficulty, had we been able to apply in practice the smoothly running system that we devised in theory. We might have had the whole weight of your committee back of us, heart and soul, had we realized that you would let us come to you and meet you and talk over with you our problems, and get your help in the lines in which we were unsuccessful.

This summer, during the school vacation period, we shall probably refer to the General Medical Pediatric Clinic any cardiac or nutrition youngsters who need special attention. But in the fall, we shall start out upon our second year of existence, with all the experience gained in the first, and with fresh interest and vigor. We are going to have one of our staff of workers come before you, just as often as you will let us; and are going to be, with your help and backing, just as great a factor in improving the health of the child life of the community as it is possible for us all, working together, to be. The most urgent of our needs we

want to put before you now, so that we may all be thinking of them this summer, and planning how they may be met, in the fall.

First of all, we need a full-time social service worker for the Nutrition Class, which includes in its scope the Cardiac Class. Our present worker can tell you how she is torn asunder by the claims upon her time and interest of the various departments of the work—feeding clinic, sick children, well babies from maternity, cardiac, and nutrition—and how inadequate one person must be to attempt to meet their manifold needs in the 24 hours of the day. Personally, I can conceive of this nutrition work without a doctor; I can not possibly visualize it as continuing, without a social service worker!

Our second need is for a committee from your number, to coöperate with the doctors in planning and providing for a definite, consistent program of health education, lectures and entertainments, for Saturday mornings of our entire season. These should comprise such prosaic affairs as health talks, both by our own nutrition doctors, and by such allies in the game as Dr. McKenna from the Orthopedic Department, someone from the ear, nose, and throat department, a dentist, etc. The social service worker can present a side of things that we miss; the hospital dietitian could approach things from yet another angle. The New York State Department of Health has promised us the use of their movie films, which could constitute a special monthly feature. Cho Cho, the Health Clown, and that

delightful Health Fairy, might be engaged for special events; even a Health Santa Claus might not be beyond the histrionic abilities of some of us, once in the year. With such a series of interesting and instructive things as these, keeping mothers and children waiting long enough for the necessary weighing and examining will be no problem at all; we shall have eliminated the great waste of time of the dispensary waiting room, substituting health instruction for boredom; and shall have at hand an incalculably valuable means of driving home the health and nutrition points that we want impressed and emphasized.

Third, we need an exhibit, in wax, of various articles of food that we can recommend, showing their relative values and amounts. We hesitated about starting the work without such an exhibit; but having seen dispensaries that had such exhibits and no Nutrition Classes, we decided to see, if it were not possible to have a Nutrition Class, even though we were to have at first no food exhibit! It will, however, make our work much easier and much more valuable to have one, and I am confident that it will come soon.

Our fourth need is for a group of volunteer aides, at least 6 in number, who will definitely take over certain phases of the work, so that the doctors may be left free to do the strictly medical work, and the social worker can function along her own special line. Two of these girls weigh and measure every child each time he visits the clinic, award the proper colored seals to which each child's gain in weight, faithfulness in attendance, or

observance of rules entitles him, and sends him back into the waiting hall by the opposite door, where he can enjoy the entertainment provided until he is summoned in turn before one of the doctors. The latter occupy rooms opening out from the side of the hall; one is for the examination of new boys, one for new girls, and one for revisits of both sexes; for it is only upon the initial visit that the child must be completely undressed for a physical examination. At these return visits, the doctor comments upon gains, ascertains the causes of failures to gain, and gives such suggestions as may be indicated. Each of these rooms is in charge of a volunteer aide, who, by keeping a constant stream of children ready for the doctor, and acting as his amanuensis, can easily double the greatest amount of work that he could possibly accomplish unaided. Another aide (either Miss Chapman or one of the girls that she will have trained along this line), will handle all records, so that no one shall be allowed to tamper with her wonderful filing system, that is getting to be one of the show features of the dispensary. We shall want one aide to take a Kodak snap of each child on admission. Last of all, there should be someone with an ability for generalship such that she can keep this whole complicated machinery running smoothly, so that we can minister to the greatest possible number of parents and children in the limited amount of time that we can devote to the work.

Starting out with these things, our class of last year will be to that of the coming season as moonlight is to

sunlight. Instead of stopping at 80 children, as we have been compelled to do, we shall be able to take in all the children that come to us. Instead of refusing even the specially needy cases that Mrs. Merriam has been begging us to take in, we shall urge her to send us every child she can find who needs what we have to offer. We shall have the admitting aide, who weighs and measures all cases in the General Pediatric Clinic, refer to us automatically every child whom her weighing and measuring show to be 7 per cent. or more underweight, so that we can cooperate with the doctor who is treating the illness, and keep on with the youngster after the immediate illness is over. We can do this, because the doctors will be doing only medical work; the social worker will have her hands free, and can seize the golden opportunity to have a word with this father or that mother who is present for the day; and each aide will be doing her own piece of work, for which she alone is responsible, and which she has learned to do better than any one else can do it. The parents will be linked up with the work of the class, and they and the children will be held by the interesting things presented them in the waiting hall by the educational committee. Were we to plan a building exclusively for this work, we could hardly make it better than the one we now occupy, with its ideal hall, lighted from the top, for lectures and demonstrations; the big room at one end, communicating with it by 2 doors, for weighing and measuring the children, taking them from and returning them to the hall in a steady stream; and

its series of examining rooms along the sides, into which the medical aides can sort the proper cases to be seen by the respective doctors.

As soon as we can accomplish it, there will be additional doctors in rooms now vacant, to handle the subclasses into which such a wide range of cases must be divided, in order to get the best results. There must be the doctors of the cardiac class, already in existence; one or more for the pretubercular class, which must soon be formed; and as many as are necessary for the health class, into which all nutrition cases proper graduate, with some little ceremony, as soon as they have had all their remediable defects corrected, and have come up to the normal expected weight for their age and height. All these, and their parents, can use in common the central hall, where a health educational campaign, appropriate for them all, will be going on. If we are to do our full duty by these children, all of them must be protected against smallpox by vaccination; against diphtheria, by the toxin-antitoxin administration that we are giving to our private cases (where the Schick test shows the individual to be susceptible); and against typhoid, by the anti-typhoid inoculations. It may soon seem advisable for the various allied departments each to furnish us a representative from its staff, so that the diagnosis of teeth, tonsils, lurking nervous disease, eyestrain, or orthopedic conditions, like spinal involvement or flat feet, may be made by experts, and defects detected that would otherwise go unnoticed, to militate against the child's climb to health. Already we have

under way such a relationship with the department of ear, nose and throat; and the others should soon follow suit.

Just one word more. I wonder whether, as I have been talking, there has occurred to any of you the conception that has gradually been taking shape in my mind—namely, of the Nutrition Class as a possible solvent of many of the puzzling hospital, medical and social problems of the day. Group diagnosis, as practiced at the Mayo Clinic in Rochester, Minnesota, and, less elaborately, all over the Middle West to-day,—we have it, in our adjoining rooms occupied by specialists in everything medical and surgical and social that affects children. A Diagnostic Clinic for the group study of children,—I know of nowhere that this has been attempted upon so comprehensive a scale. A Life Extension Institute,—we have one, in our searching history and comprehensive physical and mental examination, completed by the appropriate laboratory tests and X-ray examinations that we can and do call for. Closer organic relationship between hospital and dispensary,—we have that in the transfer of ward patients to the health or the nutrition class, instead of their discharge on leaving the hospital. Proper staffing of the dispensary, and the remuneration of the physicians working there,—we have both, in the multiplied opportunities for study, observation, and teaching afforded to both general practitioner and specialist in this detailed study of large numbers of children in comparative health as well as in the incipient stages of disease.

Health education for the people,—we have that, too, in our health talks and demonstrations to parents and children, 52 times in the year. The single record, or the central records office, about which we hear so much in discussions of the problems of hospital administration,—you have the working out of that, in the chart before you, on which every person who comes in contact with the child, either at the initial examination or at a later date, records the results or findings of his study. Better relations between medical and social forces,—can you conceive of a closer working relationship than what we have outlined above, as having been found indispensable for obtaining the best results? Greater efficiency at the least unit cost,—the Nutrition Clinic is run almost entirely by volunteer labor; it has no drug room, and is unalterably and incurably opposed to tonics, cough mixtures, and “placebos,” and it occupies the dispensary building at an hour when it would otherwise stand vacant, thus bringing a larger return from the investment locked up in the plant! The curbing of specialism run rampant,—we have even that, in the absolute intercommunication between rooms, where each doctor takes, instead of referring, his patient from one special department to another; the resulting diagnosis being the outgrowth of a complete, concerted study, rather than a series of consecutive, unrelated snapshots.

This, then, is the “Nutrition Class Idea.” No child must ever be able to say that he was told at the Brooklyn Hospital that he was “cured,” so that he need not

come back for further observation and treatment. Our doctors must never be "through with" their children. Our rule is to give every child, or his mother for him, an appointment for some future date, however remote, at which time a postal card or a visit will jog his memory, if he fails to appear. Detection or correction of defects, or protective inoculations, can then be attended to. Either the health class or the nutrition class must lay its snare for every child discharged from the wards of the hospital. Like the demon rum, we want to create in our victims an incurable habit,—“the Health Habit,”—which they simply cannot throw off. We want this habit to become so ingrained as part of their lives, that they can never slip into the diseased class whose ranks are recruited from the ignorant and the careless. And we of the Brooklyn Hospital shall have set in operation a force which can never be checked,—so vast a thing that one hardly dare attempt to compute its value to the individual, the city, and the nation. A citizenship 100 per cent. healthy,—can you conceive of it!

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SIMPLIFYING MOTHERHOOD

being

A Handbook on the Care of the Baby
During the First Year of Life

By

FRANK HOWARD RICHARDSON, A.B., M.D.

Brooklyn-New York

Regional Consultant in Diseases of Children to the N. Y. State Dept. of Health; Chief of Nutrition Class, Brooklyn Hospital; Attending Pediatrician to Brooklyn Orphan Asylum; Vice Dean Southern Pediatric Seminar; Director of Children's (Summer) Clinic, Black Mountain, N. C.; Lecturer to Teachers' College, School of Practical Arts (Nursing); Collab. Editor Archives of Pediatrics; Ped. Ed. Med. Rev. of Rev. and Southern Medicine and Surgery; ex-Pres. Brooklyn Pediatric Society.

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