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TOXIC NEURASTHENIA

N ANY DISCUSSION OF NEURASTHENIA it is well to call the reader's attention to the fact that, although often for convenience referred to as a disease, neurasthenia is really not a distinct malady in the sense that typhoid fever, small-pox, pulmonary tuberculosis, or pneumonia is a disease, but is rather a symptom or group of symptoms resulting from disease. Or, to speak more accurately, it is a group of symptoms which are not connected with a definite morbid condition, but which may accompany various morbid states—just as fever with its accompanying headache, rapid pulse, high temperature, hot skin and prostration is not a disease, but rather an indication of the presence of disease, the character and seat of which may greatly vary.

THE WORD "NEURASTHENIA" IS QUITE MODERN. It was coined by Dr. George M. Beard, an eminent neurologist of New York City, from two Greek words meaning "nerve"

and "lack of energy." The writer happened to be pursuing postgraduate studies under Doctor Beard and acting as his assistant in the department of nervous disorders at Demilt Dispensary when the Doctor was writing his early treatise on neurasthenia, and had an opportunity to become thoroughly familiar with his views of treatment, one of the characteristic features of which was the almost absolute disuse of drugs, at that time a very heretical attitude. Doctor Beard regarded neurasthenia as a distinct disease, but the writer, although at that time a recent graduate, soon became skeptical upon this point, notwithstanding the almost universal acceptance of the views of Doctor Beard in this country and Europe. Treatises on neurasthenia appeared in every language. Physicians found the new word a convenient name for all sorts of morbid nervous conditions. The disease was as popular with the laity as with the profession. Patients who had long been treated without success for nervous prostration were quickly cured by the same remedies applied for the cure of neurasthenia. The change of name gave new potency to old remedies. A wave of neurasthenia, so to speak, swept over the whole civilized world and it became rather popular to be neurasthenic.

AT THE PRESENT TIME there are probably very few eminent neurologists who regard neurasthenia as a disease, and, indeed, the term neurasthenia is disappearing from standard medical literature. The author for many years has not felt himself justified in making a diagnosis of neurasthenia in any case that has been presented to him; for back of the multifarious symptoms has almost always been found, by careful searching, a definite morbid condition which was the real disease, and to the eradication of which the appropriate remedies must be directed.

IN BY FAR THE GREAT MAJORITY OF NEURASTHENICS the disorder is simply one of many manifestations of a chronic toxemia that may be of various origins, or derived from several causes combined, the condition being expressed by the term "toxic neurasthenia." Chronic toxemia is, in fact, a dominant factor in nearly all cases of neurasthenia, either as a primary or a secondary cause.

The poisons to which chronic toxemia is due may be derived from one or all of the following sources: 1. the tissues; 2. food; 3. intestines.

Toxemia From the Tissues

1. The world owes to the late Professor Bouchard, the great French physiologist, the formulation of the important truth that the body is a factory of poisons. Animal life is a vital flame. A constant burning is taking place in the tissues—an oxidation or combustion in which the food plays the part of fuel. It is this constant burning which renders necessary the taking of food at regular intervals. To support the work of the body and maintain heat requires the daily burning of the equivalent of two and a quarter pounds of bread, or ten ounces of butter, amounting to an annual consumption of more than two hundred pounds of fat, or more than eight hundred pounds of bread.

Combustion in the body gives rise to essentially the same products as burning outside of the body. Bread or fat burned in a furnace gives rise not only to heat, but also to smoke, ashes, and possibly imperfectly burned products. Corresponding products are found when foods are burned in the body. Poisonous gases, especially carbondioxid, are carried off through the lungs. The soluble solid residues, the ashes, are dissolved

and carried off by the kidneys. Imperfectly burned products, corresponding to the cinders from coal or wood fires, may be left in the tissues, where they become a source of grave mischief. The imperfect elimination of these poisons may be a cause of toxemia and of chronic injury to the nerve and brain cells, and consequently to neurasthenia.

Tissue work gives rise to uric acid, ammonia, and other poisons, and especially to *fatigue poisons*, all of which may become a cause of chronic weariness and neurasthenia.

DEFICIENT BREATHING, deficient skin action, deficient liver and kidney activity, and deficiency of the thyroid gland may all lead to accumulation of tissue toxins, a real autointoxication. This condition necessarily exists in practically all adult persons who lead a very sedentary life.

The presence of chronic autointoxication is usually shown by a dingy, inactive skin, by a scanty and highly colored urine; a stooped posture is common, and there is often lack of appetite, a bad breath, coated tongue, emaciation, and an appearance of general feebleness.

Toxemia From Food

2. Another source of systemic poisoning is the food, especially when large quantities of flesh food are eaten. Animal flesh closely resembles human flesh. It contains the same waste elements—uric acid, urea, and other tissue poisons. Since the tissues of the slaughtered animal live for sometime after the blood ceases to circulate, tissue poisons are present in beefsteak, chops and other flesh foods in much larger proportion than are ever found in living human tissues. The total of these extractives is put down by Gautier as about ten per cent

of the total dried substance. Professor Hall, of Manchester, England, has shown that a pound of beef and other meats contains about fourteen grains of uric acid, while sweetbread contains as much as seventy grains.

Tea, coffee, beer, with vinegar, pepper, mustard and other condiments, add to the burden of toxicity, overwhelming the eliminating organs and so leading to chronic saturation of the tissues with poisons.

Toxemia From the Intestines

3. The third source of poisons, the most important of all in relation to neurasthenia, are the intestines. In the intestines, especially the colon, or large intestine, of practically all adult persons, active putrefaction processes are constantly in operation.

No end of theories have been elaborated for the explanation of the headaches, backaches, neuritis, and various paresthesias (numbness, tingling and other strange sensations) to which neurasthenics are often veritable martyrs. The only satisfactory explanation found has been the effects of various toxic substances developed in the intestinal tract by putrefactive organisms of various sorts. Roger enumerates one hundred and sixty different species of germs which thrive in the alimentary canal. Of these more than a third are poison-forming organisms that convert certain elements of the food, particularly the protein or albuminous elements, into toxic substances, some of which are tox-albumins and possessed of the virulence of snake venoms. The well-known skatol and indol, which give to the fecal discharges their characteristic odor, were shown by the experiments of Herter to be productive of headaches of a most pronounced type. Laboratory workers who have to deal with fecal

discharges often suffer from headache as the result of inhaling the odors emanating from the material undergoing examination.

The headache and other discomforts arising from constipation, and the promptness with which the unpleasant symptoms are relieved by a thorough bowel movement, afford evidence of the influence of intestinal poisons in producing neurasthenic symptoms.

Constipation and Fatigue

DOCTOR LEE, of Columbia University, New York, has for many years devoted his energies to the study of the causes of fatigue by means of delicate and precise methods and appliances which register the exact effect of any drug or other substance which may be made the subject of injury. Doctor Herter sent to Professor Lee specimens of pure skatol and indol to be tested for their effect upon fatigue. Both were found to be powerful fatigue poisons. Animals submitted to their influence quickly showed the well-known symptoms which result from the fatigue poisons produced by tissue work.

How the Body Protects Itself Against Poisons

THAT EVERY PERSON SUFFERING FROM CONSTIPATION is not a victim of headache or neurasthenia is simply due to the fact that some persons are still able to deal with their colon poisons. The body possesses a remarkable mechanism for defence against poisons. The intestinal wall is a filter which, when intact, excludes poisons, just as the intact skin is a perfect protection against the venom of the most poisonous serpent. When the intestinal membrane becomes crippled or denuded by inflammation, as in colitis, or congested and irritated through the

use of irritating condiments or the habitual taking of laxative mineral waters or cathartic drugs, the filtering power is lost and poisons penetrate into the blood and reach the delicate brain and nerve cells, producing their characteristic effects.

In addition to the intestinal filter, the body possesses other effective means of combating poisons. The liver is a poison destroying organ. Poisons absorbed from the intestine are conveyed by the portal vein to the liver before entering the general circulation, and are distoxicated, so that their toxic properties are to a very large extent destroyed.

The thyroid gland, the suprarenal capsules, and doubtless other bodily structures, are also concerned in the defense of the body against intestinal poisons. The kidneys rapidly eliminate such toxic substances as have not been destroyed, as well as their distoxicated derivatives.

So long as the poison destroying and eliminating mechanisms of the body are able to do their work efficiently, no poisonous effects are observed; but when large quantities of poisons are absorbed during long periods, as in the case with persons who are habitually constipated, the poison destroying and poison eliminating mechanisms break down. Then an accumulation of the toxins results, and general and local symptoms of poisoning make their appearance, often ending in neurasthenia.

A constipated child is a cross, peevish, and neurasthenic child. Every mother is acquainted with this fact and wisely applies the proper remedy. No competent nurse would think of giving a tonic or a "pick-me-up" of any kind to relieve the irritability and nervous restlessness of a constipated child. The strong fecal odor of the child's breath, as well as the absence of proper bowel movements, affords indubitable evidence of the fecal intoxication from which the child is suffering, and suggests the appropriate remedy—the bowels must be relieved of

their malodorous and poisonous contents. When this is done, the child quickly recovers.

Significance of Ill-Smelling Stools

WHY, THEN, should black, foul-smelling stools in an *adult* be regarded with indifference? Their meaning is precisely the same in an adult as in an infant. The adult becomes to a certain degree immune to the acute effects of colon poisons, but the chronic effects are in no way mitigated by the long continuance of the constipated state. Gradually the defensive powers of the body are exhausted and there comes the accumulation of poisons and the general vital breakdown of which neurasthenia is only a single expression. Hardening of the arteries, cirrhosis of the liver, Bright's disease, and premature old age are among the associated evils to which neurasthenics are subject. The same poisons which set the nerves on edge, which harass and cripple the brain, confuse the mind, upset the temper, change the character, work havoc with the delicate machinery of brain, liver, kidneys, heart, and every vital organ, and set in operation a whole train of degenerative processes which leave no bodily organ or function untouched.

THE FACT THAT SOME NEURASTHENICS attain advanced age is no contradiction of these patent facts. Some persons are endowed with constitutions that are remarkably resistant to the attacks of poisons. The life-long neurasthenic who has attained great age belongs in the same physical category with the octogenarian tobacco or whiskey devotee. He is simply an uncommonly hardy individual who under more favorable conditions might have enjoyed a still more extended and an immensely more pleasant and efficient life.

Latent Constipation

WHILE THOUSANDS, perhaps millions, of persons are consciously suffering from constipation and constantly combating this condition by pills, mineral waters, and various irritating drugs that purchase temporary relief at the expense of worse mischief later on, a much larger number suffer from latent constipation without being in the slightest degree conscious of the fact. The bowels move daily, but are always a day or two, or even several days, in arrears. The foul character of the stools, the fecal odor of the breath, a coated tongue, foul intestinal flatus—these signs are ample evidence of the retention of putrefying materials in the colon.

THE BOWELS SHOULD MOVE AT LEAST THREE TIMES A DAY. A movement after each meal is the normal intestinal rhythm, with perhaps an additional movement on rising. The idea that frequent bowel movements are weakening is wholly erroneous. It is not the frequent movements of diarrhea which weaken the patient, but the germ poisons which occasion the diarrhea. The acquisition of the habit of tri-daily bowel movements will do more to help a victim of chronic fatigue out of his neurasthenic ruts that any other means at present known. No other change of habits produces such immediate and striking results. This is not a random remark, but a carefully considered statement that is supported by the personal observation of results in hundreds of cases of chronic neurasthenia which had long resisted the most varied forms of treatment.

When the bowels are made to move three times a day and are each time well emptied, the undigested remnants of foodstuffs and retained excretions do not remain long enough in the colon to reach a state of advanced decomposition. Putrefaction

poisons are produced only in small quantities, and still smaller amounts are absorbed. The body is at once relieved of the effects of the great flood of virulent toxins which have been daily and hourly sweeping in upon the tissues. A great handicap to the vital forces is removed. The liver, kidneys, lungs, skin and other excretory organs are relieved of an abnormal and most onerous burden. They are now able to devote their energies to dealing with the normal body wastes so that the tissues are freed from both tissue poisons and intestinal toxins. Headaches, languor, depression, and bad breath disappear, along with the dark circles about the eyes and the dingy skin; color and appetite return, and life begins to seem worth living.

An Incompetent Ileo-cecal Valve a Cause of Toxic Neurasthenia

A DISCUSSION OF TOXIC NEURASTHENIA would not be complete without especial reference to a cause, a very potent cause, of this condition which has until quite recently been overlooked; namely, an incompetent condition of the ileo-cecal valve.

The ileo-cecal valve is an interesting structure placed at the junction of the small intestine with the colon or large intestine. It consists of two parts: a circular muscle which acts as a sphincter and controls the passage of liquid material from the small intestine into the colon, and a mechanical part consisting of two membranous lips which, when the slightest back pressure occurs, fall together and cover the opening of the small intestine into the colon, thus preventing the reflux of fecal matters from the colon into the small intestine. This valve is found in practically all mammals, from which fact it is fair to infer that its function is important in the economy of higher animal life.

The alimentary canal of higher animals is divided into three parts, known respectively as the "fore-gut," the "mid-gut" and "hind-" or "end-gut." The fore-gut consists essentially of the stomach, in which the preliminary work of digestion is done. The mid-gut consists of the small intestine, in which the real work of digestion is performed, and from which the digested food-stuffs are absorbed. The end-gut consists of the colon.

The Duties of a Check Valve

THE STOMACH MAY BE APTLY COMPARED TO THE KITCHEN; the small intestine may be said to be the dining room, while the colon serves as a waste and filth receptacle. With these facts in mind the necessity for the presence of a check valve between the colon and the small intestine is clearly evident. Normally no putrefaction takes place in the small intestine, so that indol and skatol and other products of putrefaction are not found in this part of the alimentary canal. But putrefaction of the contents of the colon is the rule in adults who subsist upon a mixed dietary. The larger the amount of albuminous substances contained in the food—that is, the more largely the diet consists of flesh foods and eggs—the greater will be the amount of putrefaction in the colon, especially if the action of the bowels is sluggish, and this condition is almost universally present among civilized people. So long as the ileo-cecal valve is intact, these putrefying materials cannot find their way back into the small intestine and the amount of poisonous matters absorbed will be comparatively small, for the reason that the colon is better prepared to defend itself against these poisons than is the small intestine. When the ileo-cecal valve is incompetent and putrefying materials find their way back into the small intestine, the body is flooded with putrefaction poisons,

and most pronounced symptoms of intestinal intoxication occur. This fact was pointed out by Adolph Schmidt, an eminent German medical authority, some years ago. Still earlier Kraus, Hertz and others called attention to the symptoms strongly indicative of intoxication which are found associated with incompetency of the ileo-cecal valve.

The Treatment of Toxic Neurasthenia

CHRONIC POISONING IS, in the opinion of the writer, the dominant factor in all cases of neurasthenia, and hence the first consideration in the treatment of these cases of the disease is to rid the body of poisons so as to give the crippled nerve cells an opportunity to recuperate and repair the damages to which they have been subjected. A cell that is poisoned by putrefactive toxins from the intestine or by retained tissue wastes is unable to gather stores of energy from the blood like a normal cell, and may be so paralyzed that it cannot make use of the stores of energy it still retains.

There are three great objects to be attained in the successful treatment of cases of toxic neurasthenia: the suppression of intestinal putrefaction, increased elimination, and improved tissue building.

Changing the Intestinal Flora

EVERY NEURASTHENIC NEEDS TO HAVE HIS INTESTINAL FLORA CHANGED. That is, he needs to get rid of the putrefactive bacteria which are manufacturing poisons in his colon and to replace them by harmless acid-forming bacteria, which not only protect the body by eliminating the growth of putrefactive organisms, but render important aid to bowel action

by furnishing a normal stimulus to the colon by the harmless acids which they produce.

Eliminative Measures Useful in Neurasthenia

INCREASED BOWEL ACTIVITY, the importance of which has already been pointed out, is without doubt the most important of all eliminative measures in this class of cases. The intestine not only discharges from the body the unusable residues of foodstuffs, but serves as an outlet for the bile, the most highly toxic of all the bodily excretions, and is also the special avenue for the excretion of certain bodily wastes, particularly those containing iron and lime. When the bowels do not act freely these poisonous excretions are reabsorbed along with the toxins resulting from putrefaction. When healthful bowel activity is maintained, these poisons are promptly eliminated and thus the most important source of tissue poisoning is removed.

BUT IMPORTANT ELIMINATIVE WORK IS PERFORMED BY THE SKIN, LUNGS AND KIDNEYS. The activity of these organs must be encouraged and there are no better means of accomplishing this than by natural methods which increase the activity of the skin, such as the electric light bath, the sun bath, and the air bath. The hot bath, the sweating pack, the steam bath and other sweating procedures are also useful. The electric light bath is best of all, for the reason that it makes possible the nicest regulation.

The electric light cabinet also has the advantage that it may be conveniently employed in one's own home. The bath may be installed in any ordinary bath room or sleeping room and is always ready to use at any moment.

Sweating measures should not be greatly prolonged in cases

of neurasthenia, on account of the depressing effect of heat when long continued. The duration of the bath should rarely exceed fifteen minutes, and often five or six minutes is quite sufficient. The primary purpose of the bath is to start vigorous sweating. It is not desirable that the sweating be continued long enough to produce any considerable degree of depletion. The bath should be concluded by a cold application of some sort. The cold shower douche, the wet sheet rub, the cold towel rub or the salt glow are all appropriate finishing measures, and are most important tonic measures.

IN PERSONS WHO ARE HIGHLY SENSITIVE TO COLD and do not react well to cold applications the cooling off may be accomplished by means of the neutral bath or graduated shower. The temperature of the application begins at about one hundred degrees, or body temperature, and is gradually cooled down to 90 or 88 degrees. The patient remains in the bath until the skin returns to its normal temperature; that is, until the heat absorbed from the heating bath has been wholly removed. After the bath the patient may rest for an hour and should then feel much refreshed.

AN EFFORT SHOULD BE MADE TO TRAIN THE SKIN TO BEAR COLD WATER, as by this means stronger impressions made upon the central nervous system may be made and more powerful tonic effects are secured. When the patient is able to endure strong cold procedures, the bath should be followed by moderate exercise for half an hour or so, so as to promote reaction and secure circulation. By repeated applications of this sort the circulation of the skin, which is generally poor in cases of neurasthenia, may be wonderfully improved. As the skin fills with blood, the congested internal organs are relieved of their surplus

blood, congestion of the brain, liver, stomach and other viscera disappear and gradually the normal balance in the blood distribution is restored.

Improved Tissue Building

THE NEURASTHENIC is constantly told that his nutrition is defective, that he needs building up. He seeks to accomplish this by means of tonics of various kinds, in most of which strychnia is the dominant element. This "building up" is purely factitious, for it is only through the use of natural physiologic agencies that tissue building can be accelerated or improved. Tonics make the patient feel better without making him better. They have been aptly termed "nerve foolers." They produce a false sense of vigor and energy, which results in the further draining of the patient's already depleted stores of energy and vitality.

What the neurasthenic needs is tissue reconstruction. He needs better nerve cells, stronger nerves—neurons with a better store of energy granules. A neurasthenic has a broken down constitution. He is not necessarily a physical wreck, but his body is crippled in a way that limits his energies and restricts his activities. And unfortunately, the injury which he has received is more or less a permanent one, hence the remedy must be permanent also.

When a constitution is once broken down under disease producing conditions the most that can be hoped for as a result of treatment is a restoration of the injured organism that will enable it to perform its work in a reasonably satisfactory manner under conditions adapted to the individual case. These favorable conditions when once established must be permanently maintained.

Out-of-Door Living

FOR ONE THING the out-of-door life is as valuable in the restoration of neurasthenics as in the cure of pulmonary tuberculosis. This simple, natural measure owes its effectiveness to the fact that it restores the patient to one of the conditions of primitive human life. Man is naturally an out-of-door dweller. Many of his maladies, including neurasthenia, are the result of in-door dwelling, and to relieve them the vitalizing influences of light and open air life are best. Exercise in the open air is indispensable to permanent restoration. Exercise must be taken judiciously and systematically. There is nothing better than out-of-door work. The work cure is especially valuable, because it occupies the mind as well as the muscles, and thus becomes to an important degree an antidote for the mental ills to which the neurasthenic above all classes of invalids is a prey.

Cold Bathing

THE COLD BATH OFTEN ACCOMPLISHES WONDERS FOR THE NEURASTHENIC. Every one is familiar with the agreeable effects of the application of cold water to the face and hands when one is weary or exhausted. The fusillade of impressions which fall upon the brain as the result of a general cold bath is, through the excitation of the millions of "cold spots" of the skin, a most powerful means of exciting languid nerve cells into renewed activity. The reaction following the cold bath when properly administered is an exceedingly agreeable experience and is not followed by the unpleasant depression which follows the use of drug tonics or stimulants. Cold is much more than a temporary stimulant. Continuous or repeated applications of cold have a powerful influence upon metabolism.

This is well shown in the improved appetite which comes with applications of cold water. Improved appetite is only an indication of improved assimilation and means accelerated tissue building, which is the only way by which the neurasthenic can hope to be permanently lifted out of his wretched state and placed upon a durable foundation of good health.

A COLD MORNING BATH properly administered is a complete antidote for the morning depression experienced by many neurasthenics. It is of the highest importance, however, that the bath should be taken in a proper way. The average neurasthenic would be little likely to receive benefit from a plunge into a tub filled with cold water. Such a bath would likely be followed by an aggravation of symptoms: increased pain, increased depression, increased disturbances of circulation, shown by cold hands and feet, etc. A single trial would be sufficient to discourage further efforts in the direction of cold bathing. Neurasthenics are generally highly sensitive to the effects of cold water and on this account it is necessary that several important precautions should receive careful attention.

Bathing Rules

Here are a few rules which should be born in mind:

A cold bath should never be taken when one is tired or exhausted.

Applications toward which there is an instinctive dread should in general be avoided. The bodily instincts generally crave things that are good for the body and repel things likely to do harm.

General cold applications should never be made when the skin is cold, when a sensation of chilliness is present, or when the

hands and feet are cold or when the head is hot. In such cases the skin must be warmed by a warm bath, as an electric light bath, or the hands and feet should be heated by placing in water and the head cooled by the application of a towel wrung out of cold water (not iced-water).

The Cold-Air Bath

GENERALLY the best time for a cold bath is immediately on rising in the morning. In many cases it is well to begin with a cold air bath. The patient gets out of bed, removes the sleeping garments, walks about the room while rubbing the skin vigorously with the hands, swinging the arms about, hopping up and down, or exercising with light dumb-bells or Indian clubs.

Feeble patients may lie upon the bed with the clothing removed and exercise by raising the legs, swinging the arms about, rolling over, deep breathing, etc. As soon as the slightest chilly sensation is felt the patient should return to bed, cover well and rest until good reaction occurs; that is, until warm and comfortable.

In winter time a cold air bath may be made a most effective tonic measure. When the temperature of the air is very low the time of exposure may be made quite short and the body may be exposed three or four times for one or two minutes at a time. An important point is to secure a good reaction after every cold application. In warm weather cooling effects may be obtained by means of an electric fan.

The Cold Towel Rub

AN EFFECTIVE COLD WATER BATH may be taken in a variety of ways. A simple plan is the towel rub. This requires the services of an attendant in case the patient is feeble,

but may be self-administered by a person of average strength. This bath consists simply of wringing a towel out of cold water and then rubbing the whole surface of the body with the wet towel until the skin is reddened and a good reaction produced, then drying well. A feeble patient should rest in bed for a half hour after.

Cold Tub Bath

A MORE vigorous bath may be taken by standing or sitting in a bath tub containing two or three inches of cold water and applying the water to the whole surface with vigorous rubbing with the hands by the aid of a sponge or towel. Such a bath should be of very short duration, not more than a half a minute or a minute at the longest. With beginners the duration should not be more than ten or fifteen seconds. After the bath the surface of the body should be well rubbed with a Turkish sheet or towel until well dried. Persons with sensitive skins should, after the bath, apply white vaseline or some good unguent so as to prevent the irritation which often results from frequent bathing, especially in cold water when the air is dry or when very hard water is used.

An Unguent for Preventing Irritation of the Skin

A MOST excellent unguent for this purpose is the following, a formula which was kindly given us by Dr. L. D. Buckley, the eminent skin specialist of New York City: Lanolin, 2 grams; boroglycerid, 1 gram; cold cream prepared with white vaseline, 6 grams.

In cases in which smarting or burning of the skin exists, a condition very common with neurasthenics, especially in cold water, ten grains of menthol may be added to the above mixture. By taking care to coat the skin with this simple preparation after every bath the irritation which arises from drying and

chapping of the skin which exposes the delicate nerve filaments, may be prevented.

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Cause of Rheumatoid Arthritis, or Rheumatic Gout

DR. CHARLES WATSON, an eminent Scottish physician, recently read before the Edinburgh Medico-Chirurgical Society a paper on intestinal toxemia, in which he maintained that rheumatoid arthritis, or rheumatic gout, "is invariably toxemic, the infection originating in most cases in the digestive tract." Doctor Watson has made a more extended study of the subject of intestinal toxemia than perhaps any other English physician, and the conclusion to which he has arrived is one of great importance.

Doctor Herter, of New York, some years ago, made a careful study of the stools in a large number of cases of this disease and found universally present putrefactive organisms in abnormal amount.

THE OBSERVATIONS OF THE PRESENT WRITER have thoroughly convinced him that rheumatic gout is a disease due to absorption of toxins from the intestinal tract. This being the case it is evident that the most successful treatment of this disease must consist in the suppression of intestinal toxins by an anti-toxic diet. A diet that excludes all putrefying foodstuffs and substances which readily undergo putrefaction under the conditions present in the intestines must be adopted as the habitual regimen. The bowels should be made to move *three times a day* so as to give no opportunity for stagnation of the intestinal contents. This is highly important, for stagnation always leads to putrefaction and absorption of the virulent toxins which are produced by many species of germs.

A STATEMENT IN A RECENT NUMBER of the *Medical Review of Reviews* must disillusion those good people who dote on bouillon, especially when prepared from cubes. Says the writer, "The ordinary commercial bouillon cubes consist of one-half to three-quarters table salt. Ranging in price from ten to twenty cents an ounce, salt is being purchased at a high price. The fact that the cubes are convenient for making a cup of broth at a cost of one to two cents, misleads house-keepers into believing that they are securing meat extracts cheaply, whereas the purchase is exceedingly expensive. The amount of meat extract in these cubes ranges from eight per cent to twenty-eight per cent in the very best brands."

THE BOTTLE FED BABY IN SUMMER

THE BABE WHO HAS THE MISFORTUNE TO BE DEPENDENT UPON ARTIFICIAL FOOD has at all times much to contend with, but in summer the dangers are increased in many ways, dangers which mothers should understand and endeavor to prevent.

Thousands of children die every summer as a result of food poisoning, unclean and impure milk being most commonly the cause. The campaigns for certified milk throughout the country are doing much to save young lives, but this is not enough. The best of milk if fed without care as to necessary details will not suffice to keep the child in health.

THE FOOD OF AN INFANT, like that of an adult, must contain all the food elements in suitable proportions for complete nutrition. These necessary food elements are:

1. Protein—blood, and tissue-forming.

2. Fat—heat-producing and fat-forming.

3. Carbohydrates, in the form of lactose or milk sugar, or the maltose found in malt sugar—heat producing. Cane sugar is not a wholesome food for infants.

4. Salts, chiefly lime salts. Mother's milk contains two and one-quarter grains of these salts to the pint, furnishing to the infant four and one-half grains daily. Cow's milk contains eleven grains to the pint.

5. Iron. Iron is needed for blood-building, especially after the eighth month. Cow's milk is deficient in iron, especially when boiled or sterilized.

CHILDREN FED ON COW'S MILK OFTEN BECOME ANEMIC, because they absorb from cow's milk less iron than from breast milk. It has been shown, for example, that on a diet of cow's milk the amount of iron absorbed by the child is less than half that absorbed when it is fed on breast milk, while the amount utilized by the body is only one-third as much. When cow's milk is boiled, the amount of iron assimilated from the food is still less—about one-tenth that derived from mother's milk. Milk contains very little iron at best, much less than other foods, which is the reason why an infant fed on cow's milk needs other foods in addition.

ONE-THIRD TO ONE-FOURTH OF THE INCREASE IN WEIGHT OF THE INFANT is due to the protein (casein) derived from its food, according to Michael, an eminent European authority. The breast-fed infant fixes or retains in its body one-third of the protein absorbed from his food, the bottle-fed infant only one-half as much.

A MONOTONOUS DIET IS HARMFUL TO INFANTS. Variety is necessary in order to furnish to the body all the various elements which it requires. In artificial feeding, milk or mixtures of milk and malt sugar (either full milk or diluted) may be used as the staple articles, but after early infancy the diet should be varied from day to day through the use of purees and juices of fruits. Gruels of various sorts may be added to the milk after the age of three to four months, and may be given to bottle-fed babies from the very beginning, if necessary.

SWEET ORANGE JUICE SHOULD BE USED FREELY after the first three months—the juice of one orange daily. Orange juice is necessary when sterilized milk is used, to avoid the evils which arise from the continuous use of cooked food. Cooking destroys the enzymes which the milk contains, and which are to some extent supplied by the fresh orange juice. It is best given about one hour after feeding.

THE FAT OF COW'S MILK is one of the most serious causes of trouble in the feeding of infants. Many infants are unable to digest the amount of fat contained in cow's milk, and the undigested portion undergoes decomposition in the intestines, forming irritating and poisonous substances. An excess of fat is one of the most common causes of indigestion and bowel troubles in infants. This difficulty is overcome by diluting the milk with skimmed milk or with water, or by removing a part of the cream and adding malt sugar.

MANY COMPLICATED METHODS AND FORMULAS FOR ARTIFICIAL INFANT FEEDING have been proposed and recommended by various authorities. Numberless special foods have been prepared and offered for sale at high prices. But

extended experience in foundling and other hospitals, as well as in private homes, has fully demonstrated that these complex and troublesome methods and expensive foods possess no real advantages, and that the best results may be attained by very simple and inexpensive means.

Recent experience, both in this country and in Europe, justifies the claim that the following simple plan of artificial feeding may be relied upon as the simplest, least expensive, and least troublesome to the mother, and hence most practical for general use:

Feeding Schedule

DURING THE FIRST YEAR: number of feedings in twenty-four hours, first month, 8; second month, 6; after second month, 5.

Milk mixtures: first month, one-third certified milk, two-thirds water that has been boiled and cooled, with two ounces malt sugar to the quart. One ounce of this supplies fourteen calories.

Second to sixth month, half water, half milk, with two ounces of malt sugar to the quart. One ounce gives seventeen calories.

Third quarter—seventh to ninth months, two-thirds milk, one-third water, two ounces of malt sugar to the quart. One ounce gives twenty-one calories.

Fourth quarter—tenth to twelfth month, full milk, with addition of two ounces of malt sugar to the quart. (Two and one-third ounces of meltose or malt honey are the equivalent of two ounces of malt sugar.) One ounce gives twenty-five calories.

Age	*Weight*	*Amt. of Food*	*No. of Feedings*	*Amt. of Feeding*	*Calories Daily*
Birth	7 lbs	20 oz.	8	2½ oz.	350
1 mo.	9 "	24 "	6	4 "	400
2 "	10½ "	28 "	5	5½ "	475
3 "	12 "	30 "	5	6 "	510
4 "	13 "	32 "	5	6½ "	545
5 "	14 "	34 "	5	7 "	575
6 "	15 "	36 "	5	7¼ "	612
7 "	16 "	32 "	5	6½ "	640
8 "	17 "	33 "	5	7½ "	660
9 "	18 "	34 "	5	8 "	680
10 "	19 "	28 "	5	5⅔ "	700
11 "	20 "	29 "	5	5¾ "	725
12 "	21 "	30 "	5	6 "	750

INFANTS UNDER ONE YEAR should not take more than thirty-two to thirty-six ounces of food. In changing to stronger diet —that is, from half milk to two-thirds milk, or two-thirds to full milk—the quantity should be reduced at first. After the child weighs eight pounds, the amount may be increased one ounce of the full milk mixture for every six ounces that it gains in weight.

THE PREPARATION OF ITS FOOD is another matter of especial importance for the bottle fed baby. The best way is to prepare the total amount for the day's feedings at one time, since by making a systematic household proceedure of it the mother or maid is more likely to give to it proper attention than when in the stress of the baby's need for food it is hurriedly put together. The formula for the food should be closely and scrupulously followed. Scales registering ounces should be at hand, as also measuring glasses of pint or quart capacity.

There should be enough nursing bottles for the entire day's

feedings, and these after being thoroughly cleansed in cold suds should be boiled hard for ten minutes or longer to render them sterile. Since the important thing is to keep both food and bottle sterile until needed, the bottles should be filled at once after being sufficiently cooled, stoppered with absorbent cotton, and placed on ice until needed. Before feeding, warm the food to blood heat by placing the bottle in a vessel of warm water. Test the temperature by sprinkling a few drops on the inner surface of your arm.

The nipple, after using, should be scrubbed clean on both sides and well rinsed with cool, boiled water. Keep in a glass filled with a solution of boracic acid. Nipples with long glass or rubber tubes should never be used, nor any sort which cannot be turned wrong side out and cleaned.

IF ONE HAS NO REFRIGERATOR, a simple ice-box may be constructed after the following plan, the method suggested by the United States Public Health Service. Procure a wooden box about eighteen inches square and twelve inches deep. Get two tin boxes, one about eleven inches square and nine inches deep, the other ten inches square and nine inches deep. Cracker boxes will do. Cut the bottom out of the larger box. Place three inches of sawdust in the wooden box. Put the larger bottomless box upon the layer of sawdust and fill the space between the wooden and the outer tin box with sawdust. Fasten the pieces forming the lid of the wooden box together with cleats nailed on the outer surface.

Tack about fifty layers of newspapers, cut to the size of the wooden box, to the inner surface of the lid. Make hinges for the lid by tacking two strips of leather onto the outside of the box and then tack additional strips of leather to the front edge of the lid to catch on nails driven into that side of

the box, in order to hold the lid down tightly. The ice box is now ready for use. Into the smaller tin box put your wire basket containing the filled and stoppered nursing bottles (or a quart and a pint bottle of milk) and surround them with cracked ice. Place the smaller tin box inside the larger and close the lid. Each morning remove the inner box, pour out the water, clean, and repack with ice. Keep the ice box in a cool, shady place. This ice box, if properly cared for and kept full of ice, will keep a day's supply of milk cool and sweet.

If the baby at its feeding does not consume its entire ration, throw that which is left away rather than retain it for a later feeding.

WHEN THE CHILD SUFFERS FROM LOOSENESS OF THE BOWELS, with fever and disturbances of the stomach, the food should be withdrawn for a day or two. Water only, or water with malt sugar, and diluted fruit juices, should be given. After a day or two, gruels should be given prepared from toasted rice flakes, toasted rice meal or wheat meal, toasted wheat flakes, barley, or oatmeal, sweetened with malt sugar, never with cane sugar. Cream, milk, and eggs should be entirely avoided in such cases until the bowels become normal and the tongue clean.

IT IS OF THE UTMOST IMPORTANCE to the health of the babe that it be carefully screened from flies at all times, and especially when feeding, while an abundance of fresh air, night and day, and as much sunshine as possible, should be a part of its regimen.

MRS. E. E. KELLOGG.

THIS IS A DAY OF BIG THINGS: of big undertakings and big achievements. Yet how much is lost because our plans are limited by the unnecessary frailty of our bodies! As Dr. W. A. Evans, Medical Editor of the Chicago *Tribune*, put it in a recent address: "When a physique is not equal to the task that is put on it, there is a disposition for the size of the task undertaken to shrink, and therefore, by bringing up the average physique, the average of capacity for the human machine, we will bring up the average of undertaking by the human machine; we will bring up the average of desire for work to be accomplished."

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The Digestibility of Starch

MANY PEOPLE WHEN THEY GIVE UP THE USE OF MEAT complain of acidity of the stomach and conclude at once that starchy food does not agree with them. So widespread is the misapprehension on this point, that even physicians are known to advise their patients to adopt a dietary containing as little starch in it as possible.

The trouble is not that starch is hard to digest, or that it disagrees with most people, for the writer in his entire experience has known of not more than five or six people with whom starch disagreed. Starch is the most easily digested of all foodstuffs—so easily digested, indeed, that it is impossible to demonstrate that any energy whatever is utilized in its conversion into sugar. The process begins in the mouth, it continues in the stomach, and is accelerated in the small intestine, so that at every stage of its journey through the alimentary tract the starch is brought into contact with juices that have the power of digesting it. Let the ability to digest proteins and fats go and the power of starch digestion will remain.

NOW WITH MOST PEOPLE the difficulty is not with the digestion of starch, but with the excessive production of hydrochloric acid in the gastric juice. The hydrochloric acid is necessary for the disinfection of large quantities of meat that are eaten. For be it remembered that hydrochloric acid makes a capital disinfecting solution, and Dame Nature orders large quantities of it for the disinfection of beefsteak. And, it is a big task at that, for nothing needs disinfection so badly as meat, unless it be limburger cheese, oysters and a few other outrageous articles of diet. And just because most people eat heartily of a meat diet, year after year, Nature grows accustomed to producing this disinfecting solution in larger and still larger quantities, until the thing becomes habitual. And then one day we discard the meat, and there is poured into the stomach enormous quantities of hydrochloric acid for which the system has no need, and which create the feeling that something is wrong with the starch digesting apparatus. In these cases one will do well to add to his starchy foods a quantity of fat, butter, cream or olive oil, for fats encourage the stomach to make smaller quantities of the hydrochloric acid.

THE ORDINARY TASK—any one can do that; it is the extraordinary thing, demanding unusual capacity of body and mind, that the average man shrinks from, said Doctor Evans in the address above referred to: "We are fairly well equipped for the ordinary work of everyday, but we are totally unequipped (and I am speaking now of the average man) when called upon to do work outside of the usual routine, when called upon to any extraordinary or unusual thing. This average individual has in his power thus to contribute to the accomplishmetns of his age vastly more than he is doing at present, by maintaining a better machine than the average that at present prevails."

IN A DELIGHTFUL EDITORIAL ARTICLE the Milwaukee *News* calls attention to the benefits of getting out in the city's open places, and urges the value of walking as against the street-car habit, and if we quote a paragraph it is because what is true in Milwaukee is quite as true in every city, even in communities which do not boast of extensive parks. "The street cars are often poorly ventilated," says the *News*, "and by too much riding in them you sometimes lose the ability which is yours by right of being able to get exercise through walking. If you walk some distance every day, it will give you confidence and strength. It will add decision and power to your character. But by all means, just now is the time to fill your lungs with all this fine, fresh air that you possibly can. It will be an insurance against sickness, and even death."

New Experiments in Nutrition

DOCTOR FOLENA, of the Hygiene Institute, of Pisa, Italy, has recently conducted dietetic studies for the purpose of determining the amount of protein required to maintain the integrity of the body. Doctor Folena found one calorie per pound of body weight to be sufficient. He also observed that the amount of protein required was not to any considerable degree increased by hard work.

THESE OBSERVATIONS AGREE WITH THOSE OF HINDHEDE, of Copenhagen, who has for several years been conducting experiments with a diet consisting almost exclusively of potatoes, with the addition of fat of some kind. Doctor Hindhede finds that when potatoes are used in sufficient quantity, with the addition of a suitable amount of fat, the body may be

maintained in health and vigor when the amount of protein is reduced to twenty-three grams, or three-quarters of an ounce per diem. It is thus evident that the large amount of protein which is consumed in the form of meat and eggs is quite unnecessary. An enormous economy in diet might be attained by cutting out a large part of the protein now consumed, and that not only with the result of making an immense pecuniary saving, but with a still greater saving of health and vigor through relieving the excretory organs of an enormous unnecessary burden.

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Errors in Diet a Cause of Cancer

DR. WILLIAM J. MAYO, of Rochester, Minnesota, who has operated upon more cancerous stomachs than any other surgeon who ever lived, in a recent address before the American Surgical Association, suggested that the cause of cancer of the stomach—which constitutes one-third of all cases of cancer—must be "some fundamental fault in the food or in the cooking of civilized men, and he especially mentioned the large consumption of meat as a probable cause.

THE VIEWS OF SUCH A DISTINGUISHED AUTHORITY as Doctor Mayo are worthy of the most serious consideration. That cancer in general, and especially cancer of the stomach, is largely due to errors in diet, especially to the large consumption of meat, is a view which this journal has maintained for nearly forty years. Eminent investigators all over the world have been coming gradually to recognize this important fact. Doctor Williams, of Bristol, England, has shown by a compilation of statistics obtained in all countries of the world that cancer is a disease of meat-eating races of men and animals.

THE GREAT GENERALS OF THE BASEBALL DIAMOND know that John Barleycorn is a bad ball player. "Five years ago I would take a man who drank—" Connie Mack, the great manager of the Philadelphia American team, is talking,—"provided I thought I could handle him—and gradually break him of the habit. Now I wouldn't bother with a youngster who drinks." The badly baited umpire is popularly credited with putting as many ball players out of the game as any other one agency, says Connie, but "all the umpires together haven't put as many ball players out of the game as Old Man Booze! And it is not necessary that a player be a booze fighter in order to be 'got' in the end—steady, 'moderate' drinking gets the ball player in the end, just as surely as boozing. Alcohol slows a man down inevitably and slowing down is the reason for the shelving of by far the majority of players." And it is good to see this great strategian of the baseball diamond get at the question of temperance from the really effective angle: "It isn't a matter of morals to our club, but of human efficiency."

Lime Water in the Baby's Milk

THE IDEA SEEMS TO BE CURRENT that lime water used in cow's milk is a valuable addition to the baby's diet, and will prevent rickets. The impression holds that the baby is going to get needed lime out of the lime water.

People who entertain this notion are entirely oblivious of the fact that milk itself contains more lime than does lime water. In a pint of milk there are twenty-six grains of lime, in a pint of lime water only twenty grains. This lime is held in solution by the casein of the milk. Another important difference is this, that the lime of the milk is organic lime, organized lime, lime

that is ready to be assimilated, whereas the lime in the lime water is dead lime, mineral lime. There is abundant evidence that this mineral matter can not be assimilated by the body, and very little if any of it at all can be used.

NOR IS THIS ALL. The lime water may do harm. Lime is an alkali; it neutralizes the hydrochloric acid of the gastric juice, and so injures digestion. There is already too much lime in cow's milk for the baby's needs. The milk of various species of animals is adapted to those animals, and the amount of lime in the milk depends on the rate at which the young animal grows. A calf will double its weight in six or eight weeks, but a baby requires five or six times as long to double its weight, so the calf requires four or five times as much lime.

Other animals—dogs and rabbits, for example—that double their weight very rapidly have as high as one hundred times as much lime as there is found in the normal food of the baby. Babies grow very slowly, and consequently they need but little lime in the milk—only three grains of lime to the pint, instead of twenty-six, as in cow's milk.

CONNIE MACK recognizes that there is more than one phase of intemperance—that there is intemperance in eating as well as in drinking: "One of the most brilliant players of the last ten years ate his way out of the American League: If you think that's far fetched, remember that a former citizen of my home town, Ben Franklin, spoke of men who 'dig their graves with their teeth.' I would make the guess that more folks die from over-eating than from starvation."

DR. MAX EINHORN, of the New York Post-Graduate Medical School and Hospital, believes that a purely animal diet in diabetes has certain disadvantages, among them the following: "It offers too little variety and departs too much from the usual mode of life, and in this way will soon pall on the appetite. At the same time it is poor in inorganic salts, thus predisposing to a surcharge of the organism with acids (acidosis) and subsequent comatose conditions."

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The Cascara Habit

ONE OF THE MOST UNFORTUNATE PHASES of constipation are its by-products in the form of drug habits. There are many substances, of course, that bring about action of the bowels with much promptitude, and with such evident relief that the sufferer follows the same remedy through the next attack, without stopping to inquire whether the drug might not be equally dangerous with the disease. The chances are he does not stop to consider the matter one way or another, but falls an easy victim to the habit of drug taking.

ONE OF THE MOST VICIOUS OF THESE VILE SUBSTANCES is cascara, which contains irritating poisons, among them a substance known as anthracin, which is extremely poisonous, and which may, if used for a long time, produce colitis.

A FEW MONTHS SINCE the writer discussed this matter of constipation and the drug habit with Professor Falta, one of the most eminent of European physicians, and the distinguished scientist said, "There is nothing so bad as the chronic use of drugs," and when we asked him his method in cases of

constipation, he said, "I regulate the diet. The harmful thing is the chronic use of drugs."

AND THIS IS THE CONCLUSION of the best men in the medical profession at the present day. A doctor who is too indolent to seek out the causes of constipation will say to his patients, "Oh, take this pill, and when the effect of it wears off take that pill," and so on until the alimentary canal is entirely worn out by abuse.

MOST PEOPLE ARE SUFFERING FROM THE EFFECTS OF CONSTIPATION, many being unaware of the fact. The writer recently treated a man seventy years of age who had an extreme case of constipation. He had reached the point where he was taking a half-pound of salts a day without being affected by it. On inquiry we learned that when he was a boy his mother gave him and his brothers a dose of salts regularly every Saturday night so that the family would have what she called a house-cleaning and thus be prepared for Sunday. Later on the dose had to be increased, until, we say, this man was taking a half-pound a day without any results whatever, and his alimentary canal from one end to the other was wholly worn out with colitis, irritation, inflammation, and catarrh.

The Cause of Exophthalmic Goitre

THE INCREASING PREVALENCE of exopthalmic goitre is a matter of sufficient gravity to cause well-founded apprehension. But if the frequency of the disease is apparent it should excite no surprise, for the causes abound on every hand.

THE FUNCTION OF THE THYROID GLAND is to destroy the deadly poisons of putrefaction that are found in the intestine as the result of constipation and the consequent autointoxication. Every one knows the horrible decay that takes place in the carcass of an animal that lies exposed for a short time, and the stench that arises. If we transfer the carcass to the human intestine, the stench becomes less noticeable, but the effects of the rotting animal are far more vicious. The toxins that are given off pervade the entire body, and the thyroid gland, in its endeavor to destroy these poisons, is over-stimulated, and, in its attempt to manufacture sufficient thyroidin to destroy the toxins, becomes enlarged. So great is the amount of thyroidin produced that it disturbs the heart, and the efficiency of the body machine, and there results what is known as exopthalmic goitre.

TREATMENT consists for the greater part in adopting an antitoxic diet, from which all meat products are eliminated. This sounds trite, yet like most things that are trite, it contains an entire philosophy. Some few years ago the papers of the country were filled with the discussion of a brilliant society wedding that occurred in one of our eastern cities. The event was of particular interest to the writer, not because of its gorgeousness, but because of the fact that the bride when a mere girl had come under his care. She had been given up to die by several of the leading physicians of the country, and as her last request she asked that she be brought to Battle Creek to spend her remaining months. The writer was consulted and at once put her on a plain diet from which meat, tea, and coffee were eliminated, and gave Nature an opportunity to restore the patient's health. The young woman was speedily restored to strength, and in time became one of the principals in the wonder-

ful society wedding. There was nothing mysterious about it. Medicines had nothing to do with the cure, for no medicines were given. Physicians played small part, for their chief care was to allow Nature to have her perfect way. The cure was rendered possible the moment the causes were removed and the healing forces of the body given a chance to operate.

French Physician Recommends Paraffin For Burns and Wounds

DOCTOR BARTHE recently presented before the Academy of Medicine, of Paris, a new method of treating wounds consisting of an application of melted paraffin wax which, after application, solidifies and serves as a dressing that retains heat and in this respect acts like a poultice, though much superior to the old-fashioned bread and milk or linseed poultice. It is useful in burns, ulcers and the treatment of gout, sciatica, lumbago and rheumatism. The paraffin wax is melted and applied at a temperature of about 120 degrees.

IN A RECENT ADDRESS ON CANCER Dr. J. M. Finney, of Baltimore, charged the prevalence of cancer of the breast to the growing disinclination on the part of mothers to nurse their infants. "The disease is a protest against modern civilization," said Doctor Finney. "It is most prevalent among childless women, and again among women who have had one or two children, but who did not nurse them. Mothers who have reared four or five children and have nursed them all rarely have it."

ONE OF THE LARGEST FARM IMPLEMENT MANUFACTURERS IN THE UNITED STATES recently devoted an entire number of its "Weekly Bulletin," issued for the benefit of its sales force, to the subject of health. On the very first page it struck the proper pace with the following facts: "The first and greatest source of disease is the entrance of poisons into the body through the intestinal tract. This is accomplished in two ways: 1. By poisons taken into the body in our food and drink. Tea, coffee, tobacco, alcohol, and many drugs and patent medicines are representative of this class. 2. By foods which decay in the intestinal tract and produce poisons which are taken into the system and produce disorders of various kinds. The foods which represent this class are particularly the foods rich in protein. Food in excess of the actual needs of the body also gives off poisons with similar effect."

Making An Alibi For Tobacco

SOME OF THE POPULAR MAGAZINES, their circulation measured by millions and their readers by tens of millions, are carrying front and back full-page covers in four colors, advertising the merits of certain tobaccos, each manufacturer with positive declaration and loud boasting claiming that his product is without the "bite" or "sting" of poisonous nicotine. A score of pipes are patented every year claiming to prevent the acrid smoke and toxic oil and deadly nicotine from reaching the consumer. More recently a chewing gum has been put on the market which promises to relieve the *dryness* of the mouth after smoking. It is not difficult for even the most hurried reader

to recognize between the lines, both in the substance and in the advertisement, the admission of the cunning advertiser of both pipe-maker and tobacco-mixer that there is poison in his product.

BUT EVERY ATTEMPT AT AN ALIBI IS FUTILE, when the facts are so patent. The nicotine from tobacco combustion and chewing enters the system through the usual channels of respiration, gestation and absorption; in chewing, the extracted toxin takes the course of foods through the stomach, absorbent glands and probably has some of its virulence burned out or diluted in passing through the liver before it enters the right heart and enters the general circuit; in smoking, the poisonous oil and nicotine are volatilized, and, with the *carbon monoxid*, a product of combustion which has both an affinity and an avidity for the blood, a triune toxin enters the pulmonary circuit, saturates the alveoli of the lungs, and hits the base of the right heart and the partition between auricle and ventricle, where are located the wondrous bundle of nerves that control the contractions and expansions of the heart's chambers, and paralyzes the valves and muscles of this wondrous organ; it taints the lung tissue and leaves the residium of stinking toxic air in the air-cells that remains for days, to pollute his exhalations; to escape it would be like trying to shun the garlic and other odors of the oriental condiments of the recent emigrant, days after their ingestion. Through the entire body absorption is going on, and back-firing and pulse-halt and heart-block signal the examining doctor, and give warning that the track is wrong, weakened, wrecked. Early, too, in these rounds the centers of both the intellectual and functional brain and spinal cord are being assaulted; in fact, the earliest impact is here and sensation and motion are crippled; through these come also the protesting reflexes, the nausea, the tremors, vertigo, convulsions and death.

WHY CLAMOR FOR PURE AIR when every waking breath of the tobacco-user is polluted with toxic fumes? The poison is absorbed from mucous membranes and from the skin; the snuff and tobacco users get theirs by the former way; in Alaska, where the extreme cold cracks the lips and cheeks while attempting to hold a pipe or cigar in the mouth, the dupe rubs up plug and fine-cut and binds it in bags under the arm-pits or over his solar plexus and imagines he gets the effects of his cherished weed. The smoker inhales and exhales and leaves a trail of highly volatilized toxin residium along the entire respiratory tract that paralyzes, benumbs, and easily makes a tuberculous victim, adding another race exterminator. When used as a poultice for spasmodic croup in infants, it has caused alarming depression and death; formerly used in strangulated hernia, it produced pallor, cold sweats and such alarm that its use in medicine was abandoned; it is too poisonous. Through smoking and inhalation all these symptoms come more direct, and the fatal invasion is averted by the protest and paralysis that releases the vigil of the flexors of the jaw and lips, that drops the pipe or cigar from the mouth to burn the skin or clothes and arouse the body to salvation.

IT IS SAID THAT TOBACCO SOOTHES PERTURBED NERVES, calms mental and corporeal irritation, soothes business ruffles and domestic infelicity. That, they say, is why the messenger and delivery boys must have it as soon as they get around the first corner; why the grocery loafer and dray drivers must have it. It allays itch, it is also said, cures corns, relieves the irritation of the unwashed, and assuages the hunger of the pestiferous tramp; any excuse or none suffices to win a recruit and hold a devotee.

DANIEL LICHTY, M.D.

DO NOT overlook giving small fruits and berries a thorough cleansing before using, particularly if purchased from a source about which there can be any question. The following incident emphasizes one of the reasons why: One morning a city woman hurrying to the piers to meet returning friends, passed through the wholesale fruit district and saw scores of fruit peddlers buying and picking over their wares. One Italian with filthy hands was sorting and grading blackberries. Another was polishing cherries, and arranging them in lovely designs in round boxes. Sometimes he polished them on his coat sleeve. When the dust stuck, he moistened the red or yellow skin of the fruit with his tongue and then proceeded to polish it.

LITTLE DEFINITIONS IN DIET—4

GLYCOGEN: A form of starch found almost wholly in the liver, though to a small extent in the muscles and other tissues. It is derived almost entirely from the carbohydrate part of the food; indeed, from evidence thus far obtained it is probable that the carbohydrate material eaten in excess of the immediate needs of the body is transformed into glycogen, to be drawn upon as the system demands. To a small extent glycogen is also formed from the proteins and fats. It is a white, tasteless powder, soluble in water (the blood-vessels sometimes contain as much as two per cent of glycogen). It has the property of being easily changed into glucose, in which form it is readily oxidized.

ALBUMIN: This term is used to denote those proteins which are found in a native or unaltered state in the solid tissues of the body. There are two main groups: egg albumin and serum-

albumin. The former occurs in egg-white, while the latter is found in the blood serum and in the lymphatic ducts and other tissues. Another group of albumins is known as "derived albumins," or "albuminates," or "meta-proteins," formed in this way: an albumin in its natural state when treated with dilute hydrochloric or other acids becomes entirely changed—it can no longer be coagulated by heat, and when neutralized the entire protein is precipitated, the new albumin being known as "acid-albumin," or "syntonin." This acid-albumin is insoluble in distilled water and neutral saline solutions, but is readily soluble in dilute acid and in alkalis. Indeed, this is the very process through which albumin goes during digestion.

GLYCERIN: The substance obtained as a result of the digestive or saponifying action of steapsin of the pancreatic juice. It is colorless, odorless, and hygroscopic. Commercial glycerine plays almost no part in diet. On account of its taste it is sometimes used as a substitute for sugar in the case of diabetics, but to most people it is nauseating.

UREA: The chief product of the katabolism or breaking down of the proteins in metabolism, about thirty-five grams being excreted daily by a man of average weight. It is found chiefly in the urine, but is also present in small quantities in the blood, lymph, liver, and in serum-fluids generally.

URIC ACID: An odorless and tasteless acid found in the urine, though normally in small quantities forming barely 0.03 per cent of its solid constituents. It is a product in part of katabolism. It has as its base a substance known as *purin*, which is found in large quantities in coffee, cocoa, meat (veal and ham especially), and cheese. The total amount excreted in

the urine of a man of average weight is about seven grains, which is lessened, however, by lack of exercise. In gout, likewise, the proportion is lowered, the uric acid accumulating in the blood and tissues. The excretions can, on the other hand, be increased by the copious drinking of water.

LACTIC ACID: An acid obtained as the result of fermentation of lactose, or sugar of milk, by means of the "lactic acid bacillus," a still further test being the transformation of lactic acid into butyric acid. It is to the action of these two acids, lactic and butyric, that the formation of curds in sour milk is due.

BUTYRIC ACID: An acid found in a free state in rancid butter, in perspiration, and in animal tissue, and in a modified form in ordinary butter and certain oils. It is an oily liquid, and possesses a disagreeable odor. What is known as "isobutyric acid" is found in putrefactive products, and in various oils.

PHENOL: Identical with "carbolic acid." It is a crystalline substance, colorless or pinkish in color, and results from the distillation of such organic substances as wood, coal, etc., and from coal-tar. It is also known as "phenyl alcohol."

INDOL: A white, crystalline substance found in the feces and formed as the result of the putrefaction of protein substances by means of intestinal bacteria.

SKATOL: An extremely fetid substance found in the human intestine and feces, and derived from the action of putrefactive bacteria upon protein substances in the food. Its pres-

ence denotes, as also in the case of indol, an excessive proportion of protein in the food, and in some cases lack of intestinal activity, stagnation of the foodstuffs in the intestines giving the putrefactive bacteria opportunity to do their malign work.

INDICAN: A substance formed from indol, and found in the urine, to which it gives an intensely yellow color. It is a yellow-brown acid, bitter, and soluble in water, alcohol or ether. The amount of indican present in urine is a measure of the quantity of the putrefaction of proteins that has taken place in the intestines.

FARINA: A term which, as generally used, covers all flours made from starchy grains or seeds or roots. A less common use applies it to starch alone, while it is also applied to a species of breakfast foods made from wheat, and from which all the gluten and bran have been removed. Farinaceous foods are not confirmed by any means to the cereals, but arrowroot, tapioca, cassava, sago and peas are also pressed into service as a source of meals, as also peanuts, chestnuts, acorns and even bananas. It is a notable fact that almost without exception the farinaceous foods must be cooked before they can be eaten. Exceptions to this rule are the banana and the nuts mentioned above.

CEREALS: Those farinaceous seeds which are adapted to use as food, such as wheat, corn, rye, rice, barley, oats and buckwheat, from which are produced a wide variety of flours. The cereals are characterized by a large percentage of starch, although a considerable amount of protein is also present, as shown by the following table:

	Protein Per Cent	*Starch Per Cent*
Wheat	16.52	56.25
Rye	11.92	60.91
Barley	17.70	38.31
Maize	13.65	77.74
Rice	7.40	86.21
Buckwheat	6.8 -10.5	65.05

The cereals are also remarkable for the innumerable palatable ways in which they can be prepared: as breads, gruels, mushes, cakes, crackers, toasted flakes, etc.

LEGUME: A term applied to the seeds of peas, lentils and peanuts. The legumes are so-called because the family of plants from which they are derived are characterized by the presence of "legumin" a protein similar in nature to casein. The various food elements contained in the more common legumes are shown as follows:

	Protein	*Fats*	*Carbo-hydrates*	*Calories per pound*
Peas, dry	24.6	1.0	62.0	1655
Beans, dried	22.5	1.8	59.6	1605
Lima beans, dry	18.1	1.5	65.9	1625
Lentils	25.7	1.0	59.2	1620
Peanuts	25.8	38.6	24.4	2560

Next to cereals legumes are the most important division of the various groups of human foodstuffs, especially in Europe, where they are everywhere regarded as staple.

Her Baby Died

THE HOUR FOR THE FUNERAL had arrived and neighbors were coming in to the services. The dead baby lay in a little white coffin lined with white satin, was dressed in white,

and flowers in profusion decorated the room and testified to the sympathy of the neighbors.

The preacher made a short prayer, uttered a few comforting words, a song was sung, the little baby was borne to the white hearse by four young girls in white, and the procession moved toward the cemetery.

The baby had died from intestinal disorder induced by wrong feeding, yet the preacher had said—"The Lord giveth and the Lord has taken away." The doctor told how it all happened. "That baby," said he, "was born strong and healthy. The mother nursed it for weeks, but, finding that nursing interfered with bridge parties and other social affairs, provided a bottle, and when she was absent her aunt who lived with her fed cow's milk. This irregularity of breast feeding soon lessened the amount of the mother's milk and she concluded she would cease nursing entirely. The child seemed to do well on the bottle for a while, but it soon became evident that something was wrong. One time I saw the mother give a piece of rich pie crust to her baby and I warned her against doing so. She told me she found the infant liked coffee and a little was frequently given to it. And so despite my protests and my warnings in regard to feeding, the child's digestive apparatus gradually broke down. An old grandmother told the mother that it was natural for babies to throw up. Another one prescribed soothing syrup which contained morphine. Another one recommended anise seed cordial, and so it went; the young mother was willing to depend upon drugs and remedies but would not practise prevention by feeding rationally. When the digestive machinery was put to the bad the baby finally took dysentery and died." Continuing, the doctor said—"I had three infants die of pneumonia last winter, simply because the mother would not give them air enough. In spite of my instructions

that plenty of air made babies strong and protected them against colds and coughs, still they would cover their babies' faces with veils and napkins keeping the life-giving air away. The foolish idea," said the doctor, "which seems to exist every where, that fresh, cold air is injurious, must be somehow extracted from the minds which hold the same or else pneumonia dead babies will always be with us." J. N. HURTY, M.D.,

Secretary, Indiana State Board of Health.

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The Baneful Influence of Parental Ill-Health Upon Offspring

MODERN BIOLOGIC INVESTIGATIONS have shown that heredity is not responsible for much that is charged to its account. Pinard, the eminent French gynecologist, investigated twenty-three cases of families, in each of which there was a single idiot, imbecile, or degenerate child, with other healthy children. In twenty-two cases he was able to find a cause for the defective child in the illness shortly before conception of one or both parents from rheumatism, influenza, jaundice, gout, or typhoid fever.

THESE FACTS EMPHASIZE ANEW the importance of applying to the human race, so far as possible, those great biologic facts and principles which have been found of such great value in the improvement of breeds of horses, cows, and other domestic animals. The neglect of these laws is developing an increasing population of defectives. Lunatic and feeble-minded asylums are multiplying faster than the increase of population warrants. The race is deteriorating for lack of attention to the plainest teachings of science. The gospel of right living must be taught for the benefit of the unborn as well as of the living.

SIR HARRY H. JOHNSTON, the distinguished English geographer, gives in the April number of the *Nineteenth Century* a partial reason for the economic problems of the Emreald Isle. "Most of the troubles of Ireland," he says, "have arisen from the abuse of alcohol from the middle of the eigtheenth century onwards. The native gentry ruined themselves with wine and brandy, and then all classes alike took to the evil consumption of whisky, a condition which down to about twenty years ago went far to maim and neutralize one of the finest peoples of the world. Who that traveled much about the British Empire in the latter half of the nineteenth century could have been unaware of the extent to which whisky-drinking spoiled the prospects of the Irish professional and middle-class representatives abroad—Irish surgeons and doctors, Irish barristers, soldier-officers, journalists, actors, sculptors and vocalists?"

Benjamin Franklin a Diet Reformer

DOCTOR STARK, in a work on diet published in 1788, stated that "Dr. B. Franklin, of Philadelphia, informed me that he himself, when a journeyman printer, lived a fortnight on bread and water, at the rate of ten pennyworth of bread per week, and that he found himself stout and hearty with this diet."

IN HIS AUTOBIOGRAPHY Franklin described his diet as, at least at certain periods, strictly excluding flesh meats of all sorts. He declares that on this simple fare he found himself able to do more work than his companions on their ordinary meat fare and that the expense of the food was scarcely one-third as great.

FRANKLIN became so much engaged in politics and in the struggle of the colonies for independence that he seems to have made no serious effort to propagate his heretical dietetic views, but in his autobiography he not only mentions his experiments with a non-flesh dietary, but clearly declares his belief in its efficiency and superiority.

Oysters Make a Good Filter, Anyway

NOW that the oyster months have passed, it is time to get ready for next season by studying about this scavenger, and in order to pass on a delightful piece of information we quote the following paragraph from a recent number of "Public Health Reports," issued by the United States Public Health Service. Says the writer, Dr. Hugh S. Cumming, "The oyster grows in tidal waters where the rivers bring down mineral and organic wealth and where are found the minute organisms which serve the oysters as food. This is the region where land and sea water meet and where, as we have seen, sedimentation of suspended solids, including sewage if it be present, is greatest. The oysters obtain their food by sucking in large quantities of water, from which is strained in their gill, everything in suspension.

"Each oyster thus probably passes through itself ten or twelve gallons of water daily, and Professor Brooks believed it probable that all the waters of the Susquehanna go through oysters before reaching the ocean. Investigation has shown that not only do disease germs remain alive in the oyster shell after the oyster is removed from the water, but, at least in some cases, they rapidly multiply."

Question Box

11540. Renal Efficiency—Indican—Enlargement of Prostate—Burning—Olive Oil—Chlorin—Colored Stools—Fruit.—R. G., Canada:

1. If the renal efficiency of a man of forty-six is 62 per cent the first hour and 132 the second hour, what is the best means of remedying the condition?

Ans.—No remedy is necessary in such a case, as the evidence is that the kidneys are remarkably healthy.

2. Does "indican 3" indicate a large quantity?

Ans.—No, although the urine should contain no indican at all.

3. How many degrees of enlargement of prostate gland do you recognize? Is the second degree far up in the scale?

Ans.—Your condition would indicate a quite serious condition, one that should have prompt attention.

4. Are burning, hungry pains in the stomach before meals ever found in cases of hypopepsia?

Ans.—Yes.

5. If so, must olive oil be discarded as a laxative?

Ans.—Olive oil is generally well borne in such cases.

6. What is indicated by clay colored stools in an adult?

Ans.—The cause may be obstruction of the bile duct, or an excessive amount of undigested fat.

7. If chlorin liberation is only .35 m and .30 n, can one hope for material improvement at my age?

Ans.—Yes, when some free HCl is present, the amount can generally be increased.

8. Should protose be avoided in such a case?

Ans.—It may be eaten in moderation without difficulty.

9. Why do acid fruits increase "hunger pains" in a hypopepsia case if such fruits are really beneficial by stimulating secretion of hydrochloric acid?

Ans.—The stomach has probably been the seat of chronic gastritis, which has left the mucous membrane in an irritable state. The stomach is often exceedingly sensitive to organic acids.

11541. Neurasthenia.—J. L. H., Michigan:

Have some time in my life chilled the nerve in my spine, and now my whole nervous system is troubling me, especially my head. It is sometimes difficult to concentrate my mind. My stomach is strongly acid, and my strength seems to be failing me. Please indicate the nature of my trouble and suggest remedy.

Ans.—You are doubtless suffering from neurasthenia, probably the result of chronic intestinal toxemia. You should put yourself in the hands of a good physician. A few months of health culture at a sanitarium would be of great advantage to you.

11542. Constipation.—D. W. A., New York:

1. What is the best measure in a decided case of constipation and autotoxemia? I can take none of the usual laxative drugs or salines, for they are irritating.

Ans.—The best remedies are laxative food, Japanese isinglass and an emulsion of paraffin oil.

2. Are enemas of warm water and salt, introduced by an eighteen inch rectal tube of soft rubber, beneficial or injurious in their effects?

Ans.—Such enemas if taken quite hot are usually decidedly beneficial in cases of colitis.

3. Should baked potatoes and toasted wheat bread be used by a person in this condition.

Ans.—The foods named are unobjectionable.

11543. Nasal Catarrh.—C. M., Massachusetts:

1. Is there any cure for nasal catarrh. My doctors claim it is incurable except in a dry climate.

Ans.—Yes. A specialist should be consulted. In some cases a slight operation is required.

11544. Fruits.—E. J. V., Ohio:

1. Is it harmful to eat fruit, either oranges or stewed prunes, a half hour or so before breakfast, if one likes it that way?

Ans.—No.

2. Is it harmful to combine acid fruit, such as oranges with sweet fruits like stewed prunes, steamed figs, or dates?

Ans.—No. Such combinations are wholesome.

11545. Chronic Catarrh.—J. H. B., California:

1. What is the nature of chronic catarrh of the throat?

Ans.—It is an infection.

2. Are there cases known to have been cured?

Ans.—Yes, these cases are always curable.

(*Continued on page 18, Advertising Section*)

Book Review

General Hygiene

A RECENT GOOD HEALTH contained a review of Doctor Overton's "Personal Hygiene," and it gives us pleasure to introduce to our readers the present volume, which is an extension of the previous subject to embrace those wider phases of modern hygiene as "founded upon the idea of personal responsibility of each individual for both the transmission and the acquisition of most diseases." Doctor Overton has prepared his work as "a text book on the general subject of hygiene and sanitation." It is adapted for pupils in the intermediate grades. It fulfills the requirements of modern courses of study in physiology, and it also conforms to the laws of the States requiring instructions in sanitation and in the prevention of diseases. It is also a text book on anatomy and physiology, but all the topics discussed have a practical application to every day living. The subjects are presented from the point of view of a health officer on active duty among all classes of people, rather than that of a science teacher, whose activities are confined to that of the class room. Written from this standpoint, the book is bound to be useful, particularly in view of the fact that technical terms are avoided wherever possible, and common every day terms used in their place. The work is profusely illustrated by photographs and drawings and each chapter concludes with a set of questions designed to emphasize the most important points of the chapter.

"General Hygiene." By Frank Overton, A.M., M.D. New York: American Book Company.

The Education of Karl Witte

IN THE year 1800 there was born to an obscure country clergyman in a German village a son to whom was given the very ordinary name of Karl, but for whom a revolutionary educational program had been marked out. The father believed that the mind of the child should not lie fallow

until the conventional school age, but that education should begin immediately upon the dawning of intelligence. The education of Karl was conducted accordingly and at nine years of age he was able to read fluently French, Italian, English, Latin, Greek, German, was a brilliant mathemetician, and was well versed in physics, history, chemistry, zoology, and botany. Before he reached the age of fourteen, he had attained a doctor's degree, and at sixteen joined the teaching staff of the University of Berlin. A formidable array of arguments were brought against the Witte system, among them being that the child's health must suffer—he lived to the age of eighty-three, his mental faculties active and vigorous to the last. The present volume is a translation of the elder Witte's account of his method, and is made by Dr. Leo Wiener, of Harvard, who has successfully followed the Witte system in the education of his own son. Too much can not be said for the book. Without doubt it is one of the most important works that has been produced in the past twelve months, and in view of the tremendous interest aroused by the Montessori movement, it is bound to exert a powerful influence in the revolution of our educational methods and theory that is taking place at the present time. A very able introduction is contributed by H. Addington Bruce.

"The Education of Karl Witte." Translated by Leo Wiener, Professor of Slavic Languages in Harvard University, with introduction by H. Addington Bruce. $1.50 net. New York: Thomas Y. Crowell Company.

How to Rest

IT IS the purpose of this book (we quote from the author's own statement) to point out in a practical manner the restful way of living, and to show the intimate connection between body, mind and spirit. It is true, as Doctor Dawson observes, that we are too apt to think of them as entirely separate, and to live partly for one and partly for another. What is needed is better teamwork between the physical and the mental, and it is the secret of achieving such co-ordination, especially as a means of aids to obtaining rest, that Doctor Dawson gives in her delightful little book. The discussion is to the point, and contains many common-sense suggestions.

"How to Rest." By Grace Dawson, M.D. Fifty cents net. New York: Thomas Y. Crowell Company.

Tuberculosis

THE open air treatment for the prevention and the cure of tuberculosis has full justice done it in this invaluable work. In a thorough discussion of every phase of the disease and its treatment and causes, the reader is made to see that, after all, medicines and serums and vaccines are of practically no avail whatever in the fight against the great white plague, but that Nature must be allowed to do her perfect work: there must be the proper kind of food, rest, sleep, healthful underwear, healthful mental states, plenty of outdoor life—and the greatest of these is outdoor life. Doctor Otis has designed his treatise to serve as a hand-book, as it were, on the treatment and prevention of consumption, with special emphasis laid on practicality. This phase of the work is vastly enhanced by the profusion of illustrations which are given. Doctor Otis is splendidly qualified to write on the subject, for seven years having been Visiting Physician for the Boston Dispensary, and being at present Professor of Pulmonary Diseases and Climatology in Tuft's College Medical School, and President of the Boston Tuberculosis Association.

"Tuberculosis: Its Cause, Cure and Prevention." By Edward O. Otis, M.D. $1.25 net. New York: Thomas Y. Crowell Company.

The Care and Feeding of Children

THE Harvard University Press has begun the issue of a new series that illustrates the growth of a closer relationship between the colleges and the people. For the past few winters the Harvard Medical School has put before the public, in a course of public lectures, the most recent and authoritative information on medical subjects of the most general interest. These lectures have proved so valuable and so popular that they are now being issued in neat pocket-size volumes, under the title of Harvard Health Talks, at the uniform price of fifty cents. The first volume to appear is "The Care and Feeding of Children," by John Lovett Morse, Professor of Pediatrics. It fairly bristles with good humored comments and practical suggestions on the hundred and one problems, from clothing to religious instruction, as well as on diet, which parents find themselves called on to meet. The book is more than a mere "handy book for mothers:" its discussion is always from the standpoint of a general and consistent healthy development.

"The Care and Feeding of Children." By John Lovett Morse, M.D., Professor of Pediatrics, Harvard University. 50 cents. Cambridge, Mass.: Harvard University Press.

The Childhood of the World

TO THOUSANDS of readers the present volume needs no introduction. Since the original edition of 1872, it has been read in every part of the world, and has been translated into French, German, Italian, Dutch, Finnish, Swedish and Sekwana. For this new edition the book has been thoroughly revised. To those to whom the book is new we may quote the author's introductory statement, that "it is the story of man, as the most wonderful thing that this world has ever seen, or ever will see. It is really the story of yourself, whereby I hope that you will learn as far as we are able to find out, how it is that you are what you are, and where you are." In short, it is the story of man's progress from the unknown time of his appearance upon the earth to the period from which writers of history ordinarily begins. "Among the subjects discussed in the first part, which is devoted to "Man, the Wonder," are "Man and Apes," "Man's First Tools and Weapons," "Discovery of Metals," "Wanderings of Early Races;" the second part of the book devoted to "Man, the Thinker," discusses such questions as "Myths," "Nature Worship," "Magic and Witchcraft," "Polytheism," "Monotheism," "Sacred Books;" while the concluding section on "Man, the Discoverer and Inventor," gives a summary of man's advancement in modern times. The book is not designed for scientific workers, but for the lay reader who wishes to gain a comprehensive view of our present knowledge of man's history on earth. It is written in simple style, technical terms being as far as possible avoided, and where used, carefully explained. A profusion of illustrations serves still further to make clear the author's story.

"The Childhood of the World: A Simple Account of Man's Origin and Early History." By Edward Clodd. New edition, rewritten and enlarged. $1.50 net. New York: The MacMillan Company.

Books Received

"The Wassermann Reaction in Cancer." By Frederick J. Fox, M.D., New York, and Morris K. Jessup, New York. Reprinted from the *Medical Record* for August 16, 1913.