

RATIONAL DIET NUMBER

# LIFE & HEALTH

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MAY, 1917

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# LIFE AND HEALTH

Vol. 32

MAY, 1917

No. 5

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Published monthly by the

REVIEW AND HERALD PUBLISHING ASSOCIATION, Takoma Park, Washington, D. C.

**SUBSCRIPTION RATES.**—One year, \$1.00; six months, 60 cents. Remit by Post Office Money Order (payable at Washington, D. C., post office), Express Order, or Draft on New York. Cash should be sent in Registered Letter. When a change of address is desired, both the old and the new address must be given. No extra charge to foreign countries.





Courtesy of Baltimore and Ohio Railroad

HARPER'S FERRY, WEST VIRGINIA

The foreground is in West Virginia, the distant hills are in Virginia, and the point across the river is in Maryland.



# EDITORIAL

## RATIONAL DIET



AN intelligent knowledge of foods and food values is essential to proper dieting. The day is past for fads in the matter of diet. We place no confidence in the raw-food advocate, in the particularizing of certain foods as the only essentials for the nutrition of the race, and in like fads too numerous to name. We must be guided by certain principles that are as fixed in their relation to diet and health as are the laws that govern the movement of the planets.

Man, being the highest order of creation, should give primary consideration to the proper provision of that which is to constitute his physical being, and provide that which his body is adapted to digest and assimilate. The world was created and adapted to serve every physical need of mankind, and the purpose of the Creator is exemplified in nature. Man's rest was provided by the Creator, in providing darkness for one half the time. Today most people rest too little. Air was created in just such proportion of oxygen and nitrogen as the lungs could assimilate and appropriate for the needs of the body. The right proportion of lung capacity was given to man; and no improvement can be made on the mixture of gases to afford a better atmosphere for respiration, than that which the Creator provided. No more and no less of the body was made up of living tissue than was necessary. The body is largely composed of water, and pure water in abundance was provided, as being the best medium to carry off the waste from the internal tissues.

Thus we recognize that the Creator had a plan<sup>1</sup> for man, and that he provided man's environment, even to the extent of outlining his occupation. We therefore ought to study the adaptability of creation, and especially to learn primarily what has been told us concerning the human organism, its possibilities and limitations, as revealed in the working out of God's purpose and plan for the human race.



We read that God said, "Behold, I have given you every herb bearing seed, which is upon the face of all the earth, and every tree, in the which is the fruit of a tree yielding seed; to you it shall be for meat." And he provided exactly the same kind of diet for the animals. We have no record of the creation of any carnivorous animals. And when we are pointed to the restoration of all things to the Edenic state, we read of the lion's eating *straw* like the ox.

The fact that men have been able to live for a period covering a number of years subsisting partially, at least, upon flesh meats, does not carry any weight of evidence that this is the diet best adapted to the human stomach, any more than does the fact that a man can subsist on beer instead of water, and still live a number of years, prove that beer is better adapted to sustain life than water, which God has so abundantly provided.

Fortunately, science sustains, as we should naturally expect it to do, God's plan for his creatures to subsist on a vegetarian diet. It should not be expected that any one would be able to thrive as well upon a diet for the digestion of which the stomach and digestive organs are not adapted, as upon the food substances which those organs were specifically created to handle. Again, we see the beautiful harmony existing between the animal creation and the vegetable creation — how the one is perfectly adapted to the other. What plants store up in the form of carbon, supplies food for animals. What animals throw off as waste — nitrogenous products and carbon dioxide — furnishes food for plants; and what plants throw off as waste — namely, oxygen — is necessary to the life of animals. We cannot take or obtain nourishment from inorganic substances, and are therefore absolutely dependent upon plants as the medium between animals and the inorganic elements. Plants do construct from carbon, oxygen, phosphorus, and other mineral elements, organic compounds which animals can ingest, reconstruct, and build up into tissue. And so we might continue to enumerate the adaptability of the one to the other.

At best, flesh must be regarded as a secondary food, being composed of organic compounds constructed very largely by the storing up of the carbohydrates derived from vegetables, in the form of glycogen in the liver and muscles; the fats derived from cereals are stored as fats in the animal; the various proteins are found in the tissues of animals as albuminous globulins and other forms of protein. These primary foods used in the construction



of the flesh of animals are far preferable to eat before passing through the organism of an animal.

There are two chief factors to consider in diet—one is to guard against too great variety of foods, thus maintaining the diet as simple as possible; and the other is to guard against a diet so simple that it is one-sided, being deficient in some of the essential elements. In reference to the first point, it is clearly evident that the Western nations have indulged in too great a variety, and have had too high a protein diet. The Orient illustrates practically how, from cooked rice combined with a few green vegetables, muscle fiber, bone, nerve tissue, and the other fundamental chemical constituents are built into the human body. Among those Orientals who subsist upon a vegetable diet, especially if it be simple and well cooked, are noted the people of greatest endurance and longevity.

In reference to the second point,—the danger of a one-sided diet,—certain dietitians have endeavored to reduce their flesh by a strictly albuminous diet. While they succeed in reducing flesh, it has been noted that they develop undesirable symptoms, as fatigue, faintness, and nerve excitability; also formerly, when persons suffering from diabetes were treated with the albumins and a fat diet, frequently patients died of coma, owing to the acid poisoning. By the addition of carbohydrates a great improvement in these cases has been noted.

It has been proved by Atwater that more albumin is absorbed when mixed with carbohydrates and fat than when the same amount of albumin is taken without the other two food elements. Likewise, the absorption of carbohydrates and fat is more adequate when the diet is properly balanced with the necessary amount of protein combined with it.

It does therefore appear that the mother of the household, who has to do with the selection of food materials and their proper preparation, since she holds the health of her household so largely within her grasp, should possess the information which we today have abundantly in the valuable literature existing upon this subject. An interest in food values and food combinations gives better results in promoting race betterment than any other single factor. Proper eating and adequate nutrition are essential to the attainment of success in almost any vocation in life.

*Harry H. Miller*



# SYMPOSIUM

## RATIONAL DIET

The reader may query whether, in the opinion of the editors of this magazine, the rules of diet may be reduced to one: "Thou Shalt Not Eat Flesh." They cannot. One whose attempt at dietetic reform consists only in abstention from flesh food, may, through ignorance or otherwise, be violating other laws of his being that will produce even more perceptible ill effects than if he continued in his accustomed diet. Future issues of the magazine will attempt to make this plain. "A Statement of Health Principles" will be found on page 144.

In this issue the articles deal largely with the comparative merits of the ordinary mixed, or omnivorous, diet, and of one which excludes flesh, ordinarily termed "vegetarian." Reasons are given why flesh is not an ideal food, and why a diet excluding flesh can be chosen which will meet all the wants of the body; and directions are given for making an intelligent choice of such a diet. The relation of diet to exercise is discussed, and the folly of taking up food fads is emphasized.

## The Pure and Wholesome Diet

H. W. Miller, M. D.

Superintendent Washington (D. C.) Sanitarium

**C**ONCERNING many of the agencies known to be destructive to health and life, and which have long been labeled as poisons, the public cannot be deceived. The danger of deception comes in the partaking of poisonous foods which one believes to be necessary to maintain life and preserve health.



The proper definition of

food cannot in any sense include substances that can be proved definitely to be poisonous, no matter how slight their destructive effect may be. We shall therefore enter into the discussion of the subjects of dietetics by outlining a diet rich in all elements necessary for the proper nutrition of mankind, and eliminating as far as possible those food substances which, in addition to their nutritive elements, contain poisons in any quantity.

In the study of foods one important principle must stand out: that, barring

toxic substances, all elements found within the tissues of the body must be found also in the food substances taken for building up the tissues of the body and maintaining its nutrition; and these substances, in brief, are named in the order of their quantitative importance: carbohydrates, protein, fats, mineral salts, and water. The infant lives on a milk diet, and the analysis of mother's milk shows it contains about six and one-half per cent of carbohydrate, four per cent of fat, two per cent of protein, and an abundance of lime salts, phosphate, and other mineral elements. Thus nature affords an indication of the relative proportion in which the food elements are needed during the time when there is more rapid tissue growth than at any other period of life. Protein is provided in the smallest proportion, and certainly we must concede that the growing infant and child should have a protein diet proportionally larger than the adult, since muscle, blood, lymph, and other tissues are very largely composed of protein.

A fairly correct proportion of these food elements in the diet of an adult



would be, according to standard authorities, 450 grams carbohydrate, or 15 ounces; 50 grams fat, or  $1\frac{3}{4}$  ounces; 60 grams protein, or 2 ounces. Therefore, taking into consideration the daily need of the individual, the proper proportion of food elements, the purity of the food, the digestibility of the foods, and the economy and cost, let us compare the meat and the vegetarian diets.

The diet referred to as "vegetarian" (sometimes, as "lacto-vegetarian") does not exclude eggs and the dairy products. As they are not organized tissues, but are made up of food elements in their simplest form, eggs and dairy products should not be classed with flesh meats. As a kernel of corn contains nourishment in the form of protein, carbohydrate, and fat, so the egg contains nourishment in the form of protein and fat. Milk, a product of certain glands which extract fats, carbohydrates, and proteins from the liquid in the tissues, does not have any cellular elements as does blood or lymph. Milk and eggs may be likened to the ear of corn, to the head of wheat, or to the pod of peas that has stored in it certain of the elementary food substances. We therefore claim that these two food products may logically be grouped with the foods comprising a vegetarian diet.

#### COMPARISON OF FOOD VALUES

About 70 per cent by weight of raw meat is water. In lean round steak there is 30 per cent of nutritive material, of which 21 per cent is protein, 8 per cent fat, 1 per cent ash, and the carbohydrate is so small in quantity that it is not considered. Meat, therefore, contains a great excess of protein. Even though he uses cereals and vegetables, the meat eater daily partakes of an excess of protein. Fats and carbohydrates, when taken in excess, can be stored in the body as fats, but an excess of protein must be broken up and eliminated at the expense of extra work for the liver and kidneys.

Again, flesh is deficient in mineral salts. Blood is much richer in these

salts. In order to obtain lime, phosphorus, and other mineral salts that are lacking in flesh, meat-eating animals gnaw at bones. Animals also turn from flesh and lick up the blood because of its greater richness in salts.

In prescribing a meat diet it would be more consistent to utilize the bone and joint tissues and the blood. This would afford a better-balanced ration than if only a part of the animal tissues were utilized as food.

Highest in the list of nutritive foods stand the cereals, with from 65 to 90 per cent of digestible elements, proportioned as follows: Carbohydrates, 53 to 80 per cent; fats, 2 to 3 per cent; protein, about 10 per cent. This more nearly approaches the dietetic requirements recognized by the leading authorities of today. Vegetables are lower in nutritive value, ranging from 5 to 25 per cent in digestible food elements, but they are generally very rich in the essential salts necessary for nutrition. From these salts animals satisfy their cravings for phosphorus and lime, and build up large, bony frameworks. Milk is especially rich in lime salts, phosphorus, and other mineral elements, and abundantly supplies anything that may be lacking in the cereal and vegetable diet.

Therefore, since only portions of the bodies of animals are used as food, flesh meat does not contain all the elements necessary for the growth of the individual. On the other hand, the cereals, vegetables, nuts, and fruits, together with milk, provide an abundance of every element that naturally enters into the composition of the human body, and in such a form that it can be readily digested.

The above comparison in food values also shows the comparative economy of the two diets, since vegetable foods possess almost three times the quantity of digestible food elements contained in meat, and it must be remembered that the cost of meat per pound is much greater than that of the foods usually provided in a vegetarian diet.



VEGETARIAN FOODS CONSTITUTE A  
PURE DIET

Disease is very common among all animals. We know it to be common among the human race, notwithstanding the advantages of sanitation and isolation. Especially common is it among the short-lived animals, which are usually kept in herds, often in unventilated quarters, with little or no effort to isolate the diseased animals. While the required inspection of meat may satisfy many who relish the flavor of meat, yet it must be considered an impossibility to exclude entirely the flesh of diseased animals. If only persons with lumps, open ulcers, and running sores were considered sick, few physicians would be required for the human race. It must therefore be evident that a great quantity of diseased meat is annually consumed, and that even the expert cannot detect any difference between the meat of the average diseased animal and that of the healthy. Among cereals, vegetables, and fruits every farmer and layman can detect the effect of disease and decay. Weavils and smut at once render cereals unfit for use, and those who subsist upon the cereal diet are protected from the diseases of these substances because they are readily revealed.

No sooner does animal life cease than decomposition sets in. Unless this decomposition is quickly arrested by refrigeration or the use of preservatives, poisons known as ptomaines are produced. These ptomaines vary considerably in toxicity, or power to poison, being at times of such violence as to terminate life. Some bacteria also have the property of forming on meat extremely poisonous toxins. Death may thus suddenly come to those who consume even small portions of contaminated meat.

The cereals and vegetables can be preserved much more safely, some varieties keeping for months and even years without deterioration. There is, therefore, in the cereal diet a wider margin of safety from ptomaines and toxins.

Meat also falls short of being an ideal food, in that under the most ideal con-

ditions it is constantly laden with certain tissue wastes. During life there is a continual breakdown of tissues, the resulting wastes being carried to the intestine, or to the liver, or thrown off through the skin or breath. When we remember that obstruction of the flow of bile causes chills and high fever, that failure of the kidneys is quickly followed by unconsciousness, and that checking perspiration or respiration soon causes death, we realize how potent are these poisons which require a complicated sewer system for their disposal and removal from the body. These poisons are constantly forming in the tissues, and are ever present in them. Hence, no animal tissue can be obtained free from impurities.

The flavor of meat is best appreciated as one begins to eat. The longer it is masticated the more insipid it becomes, and it is generally hurriedly swallowed; whereas, with the cereals, the more they are masticated the sweeter they are, since they are partially digested by the saliva of the mouth, and thorough mastication is most essential to the proper performance of the remainder of the digestive process. The digestion of cereal food is completed in a healthy stomach in from two to three hours, whereas poorly masticated flesh foods often remain in the stomach for hours, and within the stomach and intestines they very readily undergo decomposition, since putrefactive bacteria thrive most readily upon the albuminous elements in flesh foods. There is, therefore, gaseous distention of the bowels, and indigestion, with resulting constipation. The absorption of these poisons gives rise to a chronic intoxication.

Because of the excess of protein contained in the meat diet, the alimentary organs are frequently crowded beyond their capacity. Thus it becomes necessary in treating such diseases as rheumatism, gout, arterial hardening, and Bright's disease, to exclude meat from the diet, since it taxes the kidneys and the excretory organs beyond what they



are capable of performing. All physicians recognize the necessity of eliminating meat from the diet in this class of maladies. In fact, today we look on the meat diet as largely responsible for this class of diseases, and of many others.

Among people who subsist upon a cereal diet, ignorant though they may be of the laws of hygiene and sanitation, there are today those who show greater longevity, physical endurance, and freedom from chronic diseases, including apoplexy and cancer, than those living

on a flesh dietary. And many of these live upon the simplest kind of vegetarian diet; one that we should not consider well balanced or in proper proportion.

We do not, therefore, consider meat as in any sense essential to a proper diet. On the other hand, the human race would fare better and live longer on the vegetarian diet; and providing careful study is given to the preparation of a vegetable and cereal dietary, it will be found to be very palatable and to lend itself to great variation.

## Are Americans Using Diseased Meats?

G. H. Heald, M. D.

**I**N view of the danger involved in eating meat from diseased animals, the United States government has taken steps to prevent the selling of diseased meats for human consumption. According to Chrisman, federal meat inspection has

arrived at a high degree of perfection. In the *North Carolina Bulletin* he writes thus:<sup>1</sup>—



“Realizing the danger of disease being carried to man by the consumption of the flesh of diseased animals, the Department of Agriculture of the United States organized a Bureau of Animal Industry in 1883. In 1891 this bureau began the supervision of the slaughtering of animals whose carcasses were intended for interstate shipment. The Bureau of Animal Industry inaugurated a system of inspection which consists of ante-mortem and post-mortem examinations of the animals, also a third inspection of the finished product at the time it leaves the packers. So efficient has this inspection become that it is now demanded by all large packers, and thousands of trained men are regularly employed by the United States government to conduct this work.

“This work is so well organized and systematized that it is almost impossible for a shipment of beef, salt pork, or the like, to enter any

State without an inspection by a government official. This insures the consumer that he is buying meat and meat products derived from healthy animals. But this is not all. These meats and meat products are not only obtained from healthy animals,—which is of prime importance,—but the animals have been slaughtered under proper sanitary conditions, and the carcasses handled likewise throughout their processes of curing or manufacture into human food. And still another precaution is taken; viz., that no preservatives are used that will allow unscrupulous manufacturers to use bad or tainted meat in the make-up of their meat products.”

From the report it is evident that slaughterhouses handle diseased as well as healthy animals, and unless the work is effectually checked by government inspectors, meat from diseased animals will be sold for human consumption. But does the government inspection insure that all the “passed” meat is from healthy animals? Chrisman seems to say as much.

Asserting in effect that United States inspected meat is from healthy animals slaughtered under proper sanitary conditions, and is free from preservatives that might cover up the use of tainted meats, Chrisman urges that for local slaughterhouses which do not come under federal inspection, cities and towns should, for their own protection, have local inspection. He goes on to state

<sup>1</sup> “The Need of Municipal Meat Inspection,” by W. G. Chrisman, State veterinarian, Raleigh, N. C., in the *Bulletin*, N. C. Board of Health, October, 1911.



that while the federal government spends \$3,000,000 annually to protect consumers of meats shipped from one State to another,—

"it does nothing to protect the consumer from the unscrupulous intrastate packer, or, in simple terms and bringing it closer home, the butcher who buys his animals from the local live-stock dealer, farmer, or, in many cases, the dairyman, who sells his worn-out dairy cows oftentimes because disease has advanced so far that the vitality of the cow is being consumed to sustain life, and she can no longer manufacture milk in profitable quantities. He slaughters them in some old dilapidated shanty located in some low marshy hollow which will not drain away the filth from the slaughter pen, but, worse still, collects all the drainage from the surrounding neighborhood's privies, pigpens, stables, and only too often from the village bone yard."

But is the work of the United States inspectors a guaranty that even the meat they pass comes from ideally healthy animals? This query is best answered by Prof. Theobald Smith, one of the most eminent veterinarians and pathologists in this or any other country. Referring to a Massachusetts law which had been discovered and interpreted as prohibiting the sale of meat from animals affected with any local disease, of however slight a character, Professor Smith said:—

"This law is in conflict with the long-standing, well-tryed, and reasonable regulations of the United States concerning meat destined for interstate traffic."<sup>2</sup>

Professor Smith then cites the following facts: that flesh foods are among the most expensive of food products; that the modern world is addicted to the use of flesh foods; that our increasing population is lessening the great Western ranges where cattle were comparatively free from disease; that the increase in prices will induce small farmers all over the country to raise some food animals, with a marked tendency to the increase of animal disease.

Professor Smith admits that even now "an examination of the field of animal pathology shows that we actually have

few ideally healthy animals;" and goes on to give some of the many local disorders which affect food animals, adding:—

"The flesh of animals affected with these diseases is not *known* to be dangerous to man after thorough cooking, if we except those affections due to the group of paratyphoid or paracolon bacilli. . . . Where a rational meat inspection service exists, such animals are considered sound, and for good and sufficient reasons."

Professor Smith believes it is proper to eat the flesh of animals with certain locally confined diseases. So long as the actual disease cannot be demonstrated in the tissues throughout the body, no account is made of the possibility that the products of the diseased portion circulate throughout the body; and as the flesh of such animals "is not known to be dangerous to man," it is inferred that it is not.

Were government inspection on a different basis, and all animals discarded except the ideally healthy, meat would be much scarcer than it is, and would sell at dollars, instead of cents, per pound.

Professor Smith considers the demand for meat from ideally healthy animals a sort of prejudice, which we should get rid of. For instance:—

"Turning now to esthetic considerations, we may maintain that it is disagreeable to think of eating the flesh of any animal which had the slightest blemish anywhere. Perhaps it is, but under the domination of this feeling we are better off to cast our lot with vegetarians. It is often easier to school our common sense and reason in such matters than our instinctive feelings; they usually win the victory. Such feelings, however, are possessed in widely different degrees by different nationalities. For example, horse flesh is used extensively on the continent of Europe. In Saxony, dogs are slaughtered for food."

Regarding the regulation of small slaughterhouses, Professor Smith says:

"Small communities will have to band together and build sanitary slaughterhouses, and forbid the use of small, private, usually filthy, killing places. Only in large municipal plants can well-trained, well-paid inspectors be fully utilized. The cost of properly inspecting numerous small establishments would be prohibitory, and such inspection would have to be consigned to untrained, incompetent hands, with the result that the safeguarding and

<sup>2</sup> "What Is Diseased Meat, and What Is Its Relation to Meat Inspection?" by Prof. Theobald Smith, in the *Public Health Bulletin* (Massachusetts), October, 1909.



proper valuation of the product would be highly unsatisfactory under any law."

When there is no regulation, meat which by any standard would be unfit to eat, undoubtedly gets on the market.

Professor Smith predicts that until the slaughtering of animals is under adequate inspection, "we are all of us likely to eat at some time or other third-class meat, bought at first-class prices, even under a drastic law."

That even the large cities are not free from the danger of getting uninspected, and therefore dangerous meat, the *Weekly Bulletin* of the department of health, City of New York, May 29, 1915, testifies in the following paragraph:—

"For some time past the department of health has been grappling with the problem presented by the shipment to this city of farm-killed meat in a condition unfit for consumption. The markets where this meat is sold are under inspection, and *unwholesome meat is occasionally found and condemned; but owing to the small force engaged in the work, it is not adequately performed, and much of the product is consumed without previous inspection.* Whenever a diseased carcass is found, the dealer is prosecuted, and the dealers have protested against this, arguing that they had no means of knowing the condition of the material delivered to or sold by them. This is undoubtedly true, for *certain diseases in animals do not always show on the surface, and can therefore be detected only by one who knows how to examine a carcass properly.* [Italics supplied.] It was evident that a comprehensive system of inspection by competent veterinarians would be required to meet the situation, but how to administer and finance this presented considerable difficulty."

You who habitually eat meat, do you know that it is from even passably healthy animals? or do you accept your meat blindly and with the fond hope that the other fellow, instead of you, will get the diseased meat?

This article has given the most favorable view of the work of the federal meat inspection service—the view that those in charge of the service would prefer to have current, namely, that the inspection service conducted by Uncle Sam is conscientiously performed in the interests of the consumer.

There have been accusations that the inspection is conducted rather in the interests of the packers; that in order to meet the requirements of foreign countries the most healthy meats are exported and the inferior meats kept for home consumption; that secret instructions have been issued to the inspectors by the Department of Agriculture. I am not aware that these charges have been successfully disproved.

The whole problem of meat inspection may be stated in brief: *There is not enough meat from healthy animals to go around; and if only absolutely healthy meat were sold, it would have to be at a price prohibitive to any but the wealthy.*

According to the *Trained Nurse and Hospital Review* of February, 1917,

"eight veterinarians employed by the department of health in one of our large cities were recently suspended from duty on the charge of receiving bribes for passing diseased meat. Tuberculous meat was constantly appearing in some of the markets of the city, and an investigation revealed the fact that proprietors of slaughterhouses were paying the inspectors to pass diseased meat.

Suspension from duty! They should have been given a prison sentence for such a disregard of the public health.

#### DIETETIC MISTAKES OF THE PAST

The dietetic mistakes of the past have arisen from over-estimating the amount of growth and repair material required by the body. Careful experiments by widely separated investigators,—Chittenden, Fisher, Mendel, Osborne, in this country, Hindede, in Denmark, Heubner and Rubner, of Germany, and others,—support the view that sound health can be maintained and physical endurance increased on about half the quantity of protein fixed by the older scientific standards and much less than half of that fixed by custom. Increased muscular work does not call for more nitrogen, but for more carbon. "More work—more meat," is a fallacy. . . . There is less risk of injury from peas, beans, lentils, eggs, cheese, and nuts than from flesh foods, and such foods are likewise cheaper, so a goodly portion of the protein ration should be derived from such sources. Furthermore, flesh food is concentrated, and its small bulk and the lack of cellulose waste does not provide the normal stimulus to the digestive tract, so that such a diet catches you "going and coming." The nature of the food itself favors putrefaction in the intestines, and inactivity of the intestines, through lack of stimulus, increases the degree of absorption and poisoning.—Eugene L. Fisk, M. D., New York, Director of Hygiene, Life Extension Institute, Inc., in *New York Medical Journal*.



# Adequate Nutrition from Non-Meat Diet

G. H. Heald, M. D.

IT is undoubtedly true that one can select from the plant kingdom a menu capable of maintaining ideal health and vigor,<sup>1</sup> and that on such dietary one can avoid the dangers incident to the eating of diseased animal foods, purine derivatives (al-



lied to uric acid) and excessive protein. But candor compels the admission that on a strictly vegetarian diet selected without a knowledge of the nutritive requirements of the body and the nutritive value of the various foods, there is more than a chance for undernutrition. We see it everywhere. This fault may be of several kinds. There may be an excess of carbohydrates with a deficiency of protein and fat. There may be sufficient protein, but of an inferior quality. There may be a deficiency of certain of the mineral salts, as lime, iron, or phosphorus, or there may be a deficiency of those food accessories known as "vitamines."

Now these essentials to nutrition are all present in the plant kingdom, else there could be no strictly vegetarian animals, for the animal body, as well as

the human body, requires these various nutritive elements. But a one-sided, monotonous dietary is liable to be deficient in some foodstuff essential to life. A horse fed for some time on dry feed, especially on grain, is frantic in its efforts to obtain something green. It will eat twigs, bark, anything, in fact, which contains the elements lacking in its accustomed food. It has been noted by McCollum of the University of Wisconsin that animals which live naturally on green vegetable foods are well nourished and seem to require no other food, but animals which live largely on cereals find it necessary to supplement their diet with leaves, bugs, worms, etc.

Sometimes a conscientious vegetarian experiences a craving for meat which nothing else seems to satisfy. This indicates that in his selection of food he has omitted some essential which may be satisfied by the meat. It is possible, however, that peanut butter, or some other vegetable product, or at least some non-meat animal product, such as milk, cream, cottage cheese, or eggs, if added to his diet, would satisfy the craving as well as meat.

A few years ago it was believed that the essentials of diet could be summed up in proteins, fats, carbohydrates, and mineral salts. Now we know that one does not need so much protein as was formerly supposed. Nevertheless, owing in part to the fact that a portion of the protein in some of the vegetable foods, as corn and wheat, is in a form unavailable for tissue building, there is a possibility, on a diet consisting largely of potatoes, cornmeal, white flour, and the like, that there will be a lack of protein. There is more likelihood that there will be a deficiency of certain other essentials, such as iron, lime, phosphorus, and the so-called "vitamines." If iron is lacking, there will be anemia, or deficiency

<sup>1</sup> This is admitted by modern nutrition experts; for instance, Prof. L. B. Mendel says, in "Changes in the Food Supply and Their Relation to Nutrition" (Yale University Press, New Haven, Conn.): "Adequate nutrition may be exemplified alike among the meat- and blubber-eating Eskimos and the strictly vegetarian Hindus."

Mikkel Hindede, director of the Laboratory of Nutrition Research, established in Copenhagen by the Danish government, says in "What to Eat and Why" (English edition, C. A. Bang, 1914): "People must acquire the conviction that meat is not only unnecessary, but it is an expensive item of food; we eat it only on account of its taste. Bread, porridge, fruit, roots, are preferable to meat, and it is evident that people ought to eat less meat and more potatoes and bread, and begin their meals with a large proportion of porridge."



of the coloring matter of the blood. If lime is deficient, there may be poor bone formation, especially in growing children, and in expectant mothers. If there is an insufficiency of phosphorus, the lack may manifest itself in faulty bone formation and in nervous disorders. If the vitamins are wanting, there may be an arrest of growth, or some such marked disorder of nutrition as is manifested in rickets, scurvy, beriberi, or pellagra.

To give mathematical instruction regarding the number of grams protein and the number of calories required by the body and contained in various foods will be comparatively little help to the average wife and mother. Should she cook in calories, her family probably would not eat in calories, but as their appetites dictate. So it may be better to give general directions regarding the selection of a dietary. The bulk of the food should be carbohydrate, that is, starch with a small amount of sugar — the less the better, perhaps. This carbohydrate may be furnished by potato, bread, cereals, or macaroni, and to some extent by peas, beans, or lentils. Most carbohydrate foods contain an average of from ten to fifteen per cent of their total calories in protein. This quantity of protein, however, is hardly sufficient for the needs of the body, and should be supplemented by a quantity of food comparatively rich in protein — a generous helping of peas, beans, or

lentils once a day, possibly an egg or two at breakfast, or a glass of milk at night. Where peanuts or peanut butter is used, it adds materially to the protein content of the food.

There should be some of the green vegetables when obtainable — cabbage, spinach, chard, kale, or even mustard, turnip tops, and the like. The green vegetables, particularly spinach, are rich in iron, and in the vitamins.

Milk is an excellent source of phosphorus as well as of protein, but is poor in lime. White flour is poor in nearly all mineral constituents. The bran of wheat is rich in lime and phosphorus. Fruits, while yielding few calories for the price, add variety, furnish organic acids needed in the body, and usually have a laxative effect.

If one furnishes a dietary predominantly carbohydrate, with some one food rich in protein, a moderate amount of digestible fat, as cream or butter, and

some green vegetables and fruits, the dietary will not be liable to lack any essential ingredient.

Ordinarily, it is not good practice to have fruits and vegetables at the same meal. According to Sherman, certain foods have an alkaline ash, others an acid ash. The alkaline should predominate. Among the alkaline-ash foods are almonds, fruits, veg-

etables, and milk. Among the acid-ash foods are meat, fish, eggs, cereals, and peanuts.

#### GLOSSARY

**Protein:** The substance from which living tissue is built up. White of eggs and lean meat are rich in protein. The gluten of wheat is protein, so is the curd of milk which forms cheese, though in this case the protein is combined with phosphorus. Practically all plant foods contain some protein, though not so abundantly as the animal foods. The grains contain about 10 per cent of protein, the dried legumes (peas, beans, and lentils) contain about 25 per cent protein. Nuts are rich in protein as well as in fat. A pound of pure protein will yield approximately 1,800 calories.

**Carbohydrates:** The principal fuel foods of the body, consisting of the starches and sugars. In the body these are all changed into a simple form of sugar, which is oxidized or "burned," the resulting energy being transformed into heat and bodily activity. A pound of carbohydrates will yield approximately 1,500 calories. The cereals, which usually contain some water, yield about 1,600 calories to the pound.

**Vitamins:** Substances not well understood. When they are entirely absent from the food, nutrition suffers, growth ceases in young animals, and death may result. The absence of vitamins from the food is supposed to be the cause of such diseases as scurvy, beriberi, and possibly pellagra.

**Calorie:** A heat unit. It is the amount of heat that will raise the temperature of 1 kilogram of water 1 degree centigrade, or approximately 2 pounds of water 2 degrees Fahrenheit. It is approximately four times the British thermal unit. The ordinary person of 150 pounds' weight at sedentary occupation requires daily food representing about 2,500 calories, of which 250 to 300 calories should be from protein.



# How to Prepare a Non-Meat Menu

George E. Cornforth

Dietitian, New England Sanitarium

THE preparation of a meal, whether it contains flesh foods or not, may be divided into two parts: (1) the selection of the foods that are to make up the meal, and (2) the cooking or preparation of the foods for eating.

## THE SELECTION OF THE FOODS

A meat dinner centers around the meat dish. This substantial dish is considered the basis of the meal, the necessary part.



The other things are the trimmings. To select intelligently the foods that will constitute

a meal without meat, a meal that will supply proper nourishment for the body, we need to have in mind the classes into which foods are divided according to their use in the body; and the foods that belong to these classes. In such a menu, we must have (1) hearty food (represented by meat in the ordinary meal), supplied by nuts, legumes, milk, cottage cheese, eggs; and there is a considerable quantity of this kind of food in cereals and food products made from cereals, such as bread and macaroni. We must have (2) food to keep us warm and enable us to work, represented by foods containing starch, sugar, and fat, such as bread, potato, cereals, cream, milk, butter, desserts, cake, pastry. We must have (3) foods supplying mineral elements. These are supplied in abundance by green vegetables, especially raw vegetables, such as lettuce, celery, water cress, endive, fresh tomatoes, and fruits, and in fact by all foods from which parts have not been removed in the process of preparing them for eating, as is done in the making of white flour, white rice, and sugar. And we must be sure in

choosing foods to meet the three requirements already mentioned, that some of these foods are such as will supply (4) material that will not be digested, to supply bulk, that a residue may be left properly to stimulate the passage of food along the alimentary tract.

Suppose we take a skeleton menu, then we can fill it in to make balanced meals. It may consist of —

SOUPS  
SUBSTANTIAL FOODS  
STARCHY VEGETABLES  
WATERY VEGETABLES  
SALADS                      DESSERTS

We will divide the prepared dishes into groups under these different headings, and make four sets of groups: —

Set 1	Set 2
<i>Soups</i>	
Clear tomato	Cream pea
Cream spinach	Bean and vegetable
Cream celery	Lentil
Vegetable	Split pea
Tomato vermicelli	Cream barley
Nut and tomato	Cream corn
bisque	Cream spinach
Barley and tomato	Cream cauliflower
Tomato rice	Okra and tomato
Okra and tomato	
<i>Substantial Foods</i>	
Corn and pine-nut loaf	Nut rice patties
Baked split peas	Filberts, pine nuts
Nut Irish stew	Walnuts, Brazil nuts
Lima beans	Rice cutlets
Baked peanuts	Rice croquettes
Lentil and nut cakes	
Bean patties	
Roast nut meat with dressing	
Walnut timbales	
Nut steak in tomato	
<i>Starchy Vegetables</i>	
White potatoes	White potatoes
Rice, hominy	Wax beans
Sweet potatoes	Corn
Macaroni — tomato sauce	Sweet potatoes
Creamed chestnuts	Peas, rice
Corn	Barley
<i>Watery Vegetables</i>	
Cabbage, tomatoes	Spinach, beets
Brussels sprouts	Carrots, celery
Artichokes, carrots	Vegetable oysters



Onions, spinach	Cauliflower, Brussels sprouts
Beets, parsnips	Stuffed sweet peppers
Asparagus, squash	
<i>Salads</i>	
Lettuce, cress	Cottage cheese and apple
Apple and celery	Raisins, carrot, and egg
Cucumbers, ripe olives	Egg mayonnaise
Fruit salad	Waldorf
Coleslaw, tomatoes	
<i>Desserts</i>	
Sherbets	Custards
Vegetable gelatins	Fruit whips
Cake, stewed fruits	Pastry
Irish moss blanc-mange	Steamed puddings
Set 3	Set 4
<i>Soups</i>	
Vegetable broth	Cream onion
Tomato vermicelli	Cream tomato
Cream lettuce	Bean
Cream carrot	Cream potato
Cream onion	Cream cabbage
Cream water cress	Cream vegetable oyster
Cream asparagus	
Cream cucumber	
Vegetable bouillon	
<i>Substantial Foods</i>	
Nut cheese	Ripe olive loaf
Marbled beans	Macaroni au gratin
Baked beans	Scalloped eggs
Mashed lentils	Rice and egg loaf
Nut loaf, peas patties	Baked macaroni with olives
Walnut croquettes	
Nut patties	
Pea cutlets — nut crumbs	
Kidney beans	
<i>Starchy Vegetables</i>	
White potatoes, rice	White potatoes
Hominy, string beans	Corn
Sweet potatoes, corn	Rice
Shelled beans, peas	Stewed chestnuts
Hulled corn	
<i>Watery Vegetables</i>	
Spinach, greens	Eggplant
Carrots, onions	Carrots
Squash, tomatoes	Tomatoes, beets
Cabbage, asparagus	Cabbage, squash
Cauliflower, eggplant	Onions, spinach
Vegetable oysters	Turnips, parsnips
<i>Salads</i>	
Coleslaw, cucumbers	Carrot and egg
Lettuce, romaine	Egg and tomato
Chopped beets, cress	Coleslaw
Radishes, ripe olives	Lettuce and tomato
Tomato mayonnaise	Radishes, cucumbers
Cabbage and nut	Cottage cheese
Orange and grape-fruit	Potato and egg
<i>Desserts</i>	
Cornstarches	Shortcakes
Stewed fruits	Cornstarches
Tapiocas	Steamed puddings
Shortcake	Pastry
Light steamed puddings	Rice puddings

Choose from only one set, and choose only one from each group, that is, one soup, one substantial food, one starchy vegetable, one watery vegetable, one salad, one dessert. Do not repeat the same flavor, as tomato, in courses. With legumes, legume loaves and patties, as the substantial food, the soup, salad, and dessert should be light. With nut loaf and patties, the soup, salad, and dessert may be more substantial. With a substantial soup, as legume, or a substantial salad, as legume and egg, or a substantial dessert, as custard or steamed pudding, no other specially hearty food is needed, but a few nuts might be used.

For example, we might choose from Set 1: Clear tomato soup, baked split peas, white potatoes, squash, lettuce, and a vegetable gelatin dessert. It is taken for granted that bread and butter are used with all meals.

In most cases, if it is desired to make the meal more simple, the soup or the salad, or both, or the dessert, or in some cases all three, may be omitted, that is, when the soup or the salad or the dessert does not constitute the substantial part of the meal.

In another way the following statement gives in a concise way the requirements of a meal: A glass of milk, an egg, a half-dozen nuts, a dish of beans, or some cottage cheese, will usually supply all the hearty food needed at a meal. The rest of the meal may consist of bread and vegetables, or fruit and dessert, or the dessert may be omitted.

#### PREPARATION OF THE FOOD

Nuts, with the exception of chestnuts and peanuts, need no cooking. Nuts are made more digestible by grinding them to a pulp, or butter. It should be remembered that nuts are, next to clear fats, the most nutritious of foods, and they should be eaten in moderate quantities, and well chewed. Chestnuts may be roasted, or they are very enjoyable shelled, blanched, and stewed, and served with cream or cream sauce. Peanuts make a most digestible and nutri-



tious dish blanched and baked in a bean pot from twelve to twenty-four hours, as Boston baked beans are baked. Legumes require long, slow cooking, from four to twenty-four hours in the case of Boston baked beans, till they are thoroughly softened, to make them digestible. It should be remembered that milk is a substantial food, not a drink, and it is much more digestible eaten as bread and milk than drunk in gulps. Cottage cheese is a wholesome and digestible form of hearty food. Skim milk supplies more muscle food for the money it costs than any other food, and incidentally contains valuable mineral ingredients. Eggs, to be most digestible, should be cooked at a temperature a few degrees below the boiling point of water.

Cereals, which might be depended upon more largely than they are to supply substantial food, or protein, require

cooking longer than ten to twenty minutes if the digestive organs are to get from them the nourishment they contain. They should be cooked from one hour to five hours, according to the fineness to which they are ground.

Vegetables should be cooked in such a way as to preserve the mineral elements they contain, that is, baking or steaming are good methods of cooking vegetables that can be cooked in these ways. If vegetables are boiled, they should be put to cook in boiling water, and no more water should be used than is necessary to cook them properly. It is well to use in soup or gravy the water in which vegetables are cooked.

Bread made from flour ground from the entire grain, from which nothing is removed in the milling process, may be depended upon as a substantial part of the diet.

## A STATEMENT OF HEALTH PRINCIPLES

The following statement of health principles was adopted at the Medical Convention held in Madison, Wis., June 5-10, 1916:—

"1. The control of appetites and passions; self-control instead of self-indulgence.

"2. The use of wholesome and nourishing foods, containing the necessary food elements in proper proportion.

"3. Abstinence from the use of alcohol and tobacco, tea and coffee, flesh meats, rich and highly seasoned foods, irritating spices and condiments.

"4. The limited use of sugar and pastry foods.

"5. Simplicity in variety and amount, and in the scientific combination and preparation of foods.

"6. Proper clothing of the body as relates to warmth, protection, simplicity, and modesty, avoiding constrictions and improperly adjusted weights.

"7. Sufficient and appropriate exercise, especially for those whose work is sedentary.

"8. Abstinence from the use of poisonous drugs, above all, avoiding the patent medicine habit; and an intelligent application of the principles of rational treatment, as represented in the proper use of water, air, food, electricity, massage, and other natural physiological stimuli and therapeutics.

"9. Strict cleanliness of person and premises.

"10. Proper and sufficient hours of sleep and relaxation.

"11. Proper and sufficient ventilation of churches, schools, dwelling houses, and especially sleeping-rooms.

"12. Activity in the warfare against flies, mosquitoes, and all other disease-producing and disease-carrying insects."

The above outline is a consistent declaration of the fundamental principles of health. We believe it is broad enough to permit the practice of everything essential to healthful living, and restrictive enough to forbid the things recognized by most authorities as harmful.



# Importance of Cooking

Mrs. E. G. White

Paragraph Selections from "Ministry of Healing"

**I**N order to maintain health, a sufficient supply of good, nourishing food is needed. If we plan wisely, that which is most conducive to health can be secured in almost every land.



The various preparations of rice, wheat, corn, and oats are sent abroad everywhere, also beans, peas, and lentils. These,

with native or imported fruits, and the variety of vegetables that grow in each locality, give an opportunity to select a dietary that is complete without the use of flesh meats.

Wherever fruit can be grown in abundance, a liberal supply should be prepared for winter, by canning or drying. Small fruits, such as currants, gooseberries, strawberries, raspberries, and blackberries, can be grown to advantage in many places where they are but little used, and their cultivation is neglected.

For household canning, glass rather than tin cans should be used whenever possible. It is especially necessary that the fruit for canning should be in good condition. Use little sugar, and cook the fruit only long enough to insure its preservation. Thus prepared, it is an excellent substitute for fresh fruit.

Wherever dried fruits, such as raisins, prunes, apples, pears, peaches, and apricots are obtainable at moderate prices, it will be found that they can be used as staple articles of diet much more freely than is customary, with the best results to the health and vigor of all classes of workers. . . .

It is not well to eat fruit and vegetables at the same meal. If the digestion is feeble, the use of both will often cause distress, and inability to put forth mental effort. It is better to have the fruit at one meal, and the vegetables at another.

The meals should be varied. The same dishes, prepared in the same way, should not appear on the table meal after meal and day after day. The meals are eaten with greater relish, and the system is better nourished, when the food is varied.—*Pages 299, 300.*

Scanty, ill-cooked food depraves the blood by weakening the blood-making organs. It deranges the system, and brings on disease, with its accompaniment of irritable nerves and bad temper. The victims of poor cookery are numbered by thousands and tens of thousands. Over many graves might be written: "Died because of poor cooking;" "Died of an abused stomach."

It is a sacred duty for those who cook to learn how to prepare healthful food. Many souls are lost as the result of poor cookery. It takes thought and care to make good bread; but there is more religion in a loaf of good bread than many think. There are few really good cooks. Young women think that it is menial to cook and do other kinds of housework; and for this reason, many girls who marry and have the care of families, have little idea of the duties devolving upon a wife and mother.

Cooking is no mean science, and it is one of the most essential in practical life. It is a science that all women should learn, and it should be taught in a way to benefit the poorer classes. To make food appetizing and at the same time simple and nourishing, requires skill; but it can be done.—*Pp. 302, 303.*



# Exercise in Relation to Diet

J. W. Hopkins, M. D.

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THE average person has a very indefinite idea of the proper relation between diet and exercise. Overeating is one of the chief causes of the rapid increase of heart, blood vessel,



and kidney trouble, obesity, chronic rheumatism, stomach and intestinal trouble, neurasthenia, and a host of nervous conditions. Even melancholia and insanity are often due to the improper balance between exercise and diet, and for the same reason, many who are apparently well are satisfied to work in a condition much below par.

Chittenden,<sup>1</sup> in his studies and experiments, has demonstrated that the proper ration, instead of being that habitually used by the average working-man,—125 to 150 grams of protein with carbohydrates and fat to a total fuel value of 3,800 calories,—should be an average of 60 grams of protein with carbohydrates and fat to a total fuel value of 2,800 calories. This is a marked reduction.

Gautier<sup>2</sup> tells us that the average man at rest requires a little more than one half of the food necessary for the man doing manual labor, varying sometimes with the nature of the work. He also says that a man of sedentary habits, while he is doing mental work in an office, is using no more fuel, burning up no more food, than the man who does nothing,—who is at rest.

Another fact made very prominent in the studies of these and other workers is that protein should be used in small amounts, for repair only, and not for fuel or energy. When used for the latter purpose, the nitrogenous portion may be separated and eliminated as waste matter, leaving the carbon and oxygen to be formed into a carbohydrate and thus used as a source of energy. This is a very expensive method of carbohydrate formation,<sup>3</sup> and not in keeping with body economy, the original cost of protein being greater, and its change into carbohydrate requiring an expenditure of a greater amount of energy by the body.<sup>4</sup>

The protein necessary for arduous work can be obtained from bread and vegetables, and gives a more prolonged assimilation than does the protein from flesh foods, without the nerve excitation produced by the latter.<sup>5</sup>

This demonstrates that the flesh proteins are a handicap in the diet, as the energy which they afford is too quickly generated, and does not hold out long enough. The flesh diet gives rise to the accumulation of a greater amount of waste matter in the system, produced not only by the metabolism of the nitrogenous food, but also by the accumulation of the waste which is present in the flesh food itself. For this reason flesh-eating mental workers must work harder, do more physical exercise daily, than those who subsist upon a purely vegetable diet. Vegetarians can do more satisfactory work, having as an additional advantage the absence of these waste matters which would hinder brain activity and hamper them in performing their work. Vegetarians are thus capable of great endur-

<sup>3</sup> Joslin, "Treatment of Diabetes Mellitus," pp. 114, 220.

<sup>4</sup> Chittenden, page 129.

<sup>5</sup> Gautier, page 99.

<sup>1</sup> R. H. Chittenden, "Nutrition of Man."

<sup>2</sup> A. Gautier, "Diet and Dietetics," pp. 95, 96, 49-52.



ance, and owing to their clearness of mind and strength of body, can accomplish tasks requiring severe and prolonged application. Gladstone and other noted brain workers have subsisted wholly on a very plain, simple fare, breaking the routine of their work by vigorous physical exercise.

It has been estimated that the man who does office work, the man of sedentary habits, should do physical work corresponding to about one fourth the amount which he would accomplish if he were engaged wholly in physical instead of mental work. The amount of work thus needed depends upon the size and condition of the man and upon the amount of food that he eats, and is equivalent to walking about six to nine miles.

The list of exercises for this month is shortened a little by combining two exercises, and is increased a little in severity. Try to make the work progressively stronger day by day. In the standing position, if the position of the feet at right angles is uncomfortable, they may be placed at an angle of sixty degrees, or less if it seems better.

**Exercise 1:** Standing with the left foot advanced forward two foot lengths, (a) fling the arms forward and upward to a stretch position above the head, rising on toes and filling the lungs at the same time. (b) Lowering the heels, let the arms sink sidewise downward, emptying the lungs. Repeat this exercise six to twelve times, taking one half the exercises with the right foot advanced forward.

**Exercise 2:** Take the fundamental standing position, bending the arms so that the finger tips come to the shoulders, keeping the elbows pressed well back and down; (a) bending the knees to a squatting position, extend the arms sideways, shoulder high. (b) Bend the arms to the original position and extend the knees. The heels should come from the floor as the knees are bent, and the lungs should be filled as the arms are extended sideways. Repeat six to twelve times.

**Exercise 3:** With the feet separated sideways about two foot lengths and the arms raised forward, shoulder high, palms facing in, (a) separate the arms sideways as far back as possible, and bend the trunk backward. This exercise should begin in the neck and should raise the chest high. Inhale as you bend backward. (b) Raise the body, bringing the arms forward. While the body is bent backward as in (a), bend and stretch the arms sideways as in Exercise 2. This will increase the strength and value of the exercise.

**Exercise 4:** (a) Advance the left foot forward two foot lengths, and bend the arms to the position of Exercise 2. (b) Extend the arms upward as high as you can reach, bending the knees to a squatting position. (c) Bend the arms to the position of (a), and extend the knees. (d) Resume original position, heels together, arms down. Repeat this exercise four to twelve times, advancing first left foot, then right foot forward.

**Exercise 5:** From the original standing position, (a) raise the arms sideways to shoulder height, and lift the leg sideways, pointing the toes outward. (b) Return to position. (c) Repeat the arm movement, raising the right leg sideways. (d) Return to position. This exercise should be taken five to ten times with each foot, and may be varied by raising the leg backward instead of sideways. The body should be kept erect during the exercise, and the lungs should be filled as the arms are raised.

**Exercise 6:** With the arms raised forward as in Exercise 3, (a) lunge or charge forward three foot lengths with the left foot, bending the forward knee, and flinging the arms sideways at the shoulder height. (b) Bring the foot back to position and the arms forward to the initial position of Exercise 3. (c) Repeat the arm flinging, charging forward with the right foot. (d) Come back to position of (b). Do this exercise two to twelve times.

**Exercise 7:** Lying on the back with the feet supported under the edge of the bureau or bed, and the hands on the hips, (a) keeping the head back and the chest elevated, raise the body to sitting position. (b) Go back to the reclining position,—lower the body. The breath should not be held during this exercise, but inspiration should take place with either raising the body or lowering it, preferably the former. It is also well to take two or three deep breaths between the exercises. Repeat two to twelve times.

**Exercise 8:** With the feet separated about two foot lengths and the arms flexed as in Exercise 2, (a) bend the body to the left, extending the right arm upward and the left arm downward. (b) Raise the body, bringing the arms to the flexed position. Repeat this exercise four to twelve times, bending first to the left and then to the right, continuing the deep breathing with each exercise. When bending to the right, extend the left arm upward, right arm downward.

**Exercise 9:** With the hands on the hips and the left foot advanced forward two foot lengths, (a) spring into the air, and change the position of the feet so that the right foot will be forward, and the left backward. Continue this exercise, landing on and springing from the toes about ten to thirty or forty times. Instead of doing this exercise, walking in place or running in place may be substituted.

**Exercise 10:** With the left foot advanced two foot lengths forward and the arms raised sideways shoulder high, (a) bend the trunk forward, keeping the knees straight and the head up. (b) Raise the body. Inhale deeply during the forward bending, and exhale as the body is raised. Do this five times and repeat with right foot forward. (Cont. on p. 159)



# The Pendulum Swing of Health Reform

## The Fallacy of Following Foolish Food Fads

L. A. Hansen

NO greater harm has been done the cause of health reform than that done by people who have advocated and practiced extreme measures. The promulgation of fads by so-called reformers has hindered the progress of real health truth. Enthusiasm for an isolated health idea or partial truth has obscured the vision and prevented a broad conception of fundamental principles.

Hobby riding is poor exercise for a health reformer, as it leads into a rut. Sidetracking one from the great highway of common-sense living, it follows an uneven road that has a bad ending. Hygienic reform is based upon principles that are broad and far-reaching. Narrow views and one-sided theories do not properly represent it. Notions based on a superficial knowledge lead people away from truth. The narrow conceptions of would-be reformers and their queer practices, have kept many good people from accepting true reform.

A characteristic of extremists is that of swinging to one side or the other, like the pendulum of a clock. The same individual may one day hold a certain view, and another day take the opposite view; or one man may teach one extreme, and another man hold the other. Both views cannot be right, and usually both are wrong. Moderation in all things is a Bible injunction.

We remember the time when the potato, because of its supposed poisonous mineral salts, was taboo. Then came the day when this lowly vegetable was exalted to a place of dietetic eminence, and

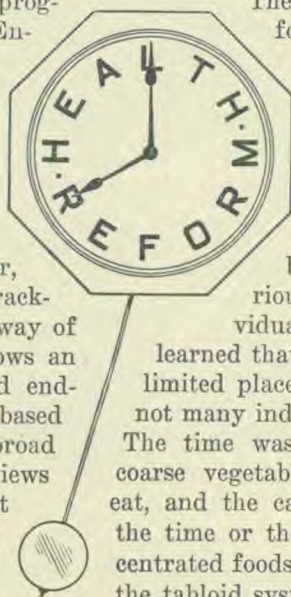
a baked potato was about the last word in wholesome foods. The truth is that the potato has been and is a nutritious food, easily digested by most people; but it is not indispensable.

The "nut-butter era" of food reform is recalled by some who speak in vigorous language of the extravagant views then held as to the value of the peanut. The frequency with which peanut butter was used in the preparation of foods or as a spread for bread, had a marked deleterious effect on the health of individuals, some of whom have since

learned that peanut products may have a limited place in the bill of fare, but that not many individuals can use them freely.<sup>1</sup> The time was when bulky food, such as coarse vegetables, was considered unfit to eat, and the careful eater could not afford the time or the energy to handle it. Concentrated foods were recommended, and even the tabloid system of feeding was suggested by some. Now it is known that a certain amount of bulk is essential to proper elimination, and greenstuffs and coarse vegetables have come into their own. Moreover it is known that the green vegetables are rich in mineral salts and other food accessories which constitute them valuable foods. On the other hand, people who rely wholly on these foods find themselves suffering from malnutrition, for want of certain food elements not contained in this kind of diet.

On the theory that digestion is furthered by the use of predigested foods,

<sup>1</sup> In fact, some, by overuse or otherwise, have been sensitized to the peanut, as others are sensitized to eggs, so that these foods have become poisonous to them. We speak of a sensitized person as having an idiosyncrasy for this or that food.





it was for a time considered advantageous to overcook or dextrinize the grain or starchy foods. Then it dawned on some one that the digestive organs, in order to be normal, must do their allotted work; and that for generations the digestive system had been adapted to the digestion of starches prepared only by boiling. More recently, it has been discovered that certain essential food accessories in the grains are destroyed by the high temperature required in dextrinization. Some who have relied largely on such foods, have found themselves suffering from malnutrition. On the other hand, there are invalids who seem to be benefited by a temporary use of dextrinized foods.

Nature does provide some ready-to-serve foods, such as fruits, nuts, and milk, the cooking of which may offer no improvement. Cabbage, onions, celery, turnips, and the like may agree better with some people when raw than when cooked, for the reason that they do not ferment in the stomach. Whether they digest at all may be a question, and the fact that they act as so much foreign matter, passing through the body as indigestible substance, may account for the beneficial effects some experience in their use.

If any one wants to eat only raw food, we will not object, but we must note that the proper preparation of food is one of the highest essentials, and that skilful cookery serves the needs of the human system in many ways. The cow and the horse can handle raw grains, but our digestive systems are not prepared to do such work. All ripened grains and legumes and most vegetables require cooking to make them more digestible and palatable. While high temperature may destroy certain food essentials, it also destroys harmful bacteria, and some foods must be subjected to such a sterilizing process in order to be safe.<sup>2</sup> With the average mixture, containing such

foods as fresh fruits, milk, and nuts, we no doubt get sufficient raw food material to meet normal needs.

Regarding the use of drink with meals, there are people who never allow anything but saliva and gastric juice to mix with their solid food, and others who require a pitcher of cold water at each meal. So far as we know, both classes get along quite well. Does this prove that we can do either with equal impunity?—Not at all. These two classes would probably find it quite impossible to reverse their practices. And so with us all; we have our individual needs. The fact that some find comfort in the free use of water at meals does not indicate that everybody can. While a small amount of water may be desirable to many, its use should be to quench natural thirst, and not to wash down partially masticated food.

This brings to mind the extreme emphasis laid on mastication by Horace Fletcher and his followers. Without underestimating the harm of bolting the food and the importance of thorough mastication, we are inclined to believe that even as good a thing as chewing one's food may be carried to an extreme, and the real pleasure of eating be lost in the close attention given to following a fad. Some investigations seem to throw doubt on the question of the real value of Fletcherizing. At least we are aware that many people, not knowing of this modern idea and probably following the old style of "just chewing," have lived long and well.

The problem of how much to eat raises a cloud of theories. Prolonged fasting and prolonged stuffing have each their earnest advocates. The reasoning man knows both these extremes cannot be right. He will grant that there may be times when fasting is desirable, and there may be occasions when an unusual amount of food is required. But surely it must make a great difference whether one follows either plan all the time. The fact is that it is not good either to underfeed or to overfeed. Too much food or

<sup>2</sup> Uncooked vegetables may be decidedly unsafe because of contamination or pollution from the soil. Typhoid fever and intestinal diseases may be acquired through the use of vegetables fertilized with human excretions.



too little is bad. The exercise of common sense will be worth a host of theories; and a careful selection of a well-balanced ration, eaten in proper quantities to suit one's actual requirement, will leave one free from the worry of theoretical problems.

Many persons think they are good reformers when they discard certain unwholesome foods. They may substitute other harmful things that will simply mean going from one bad thing to another. Others, dropping off the use of some things that have given them nourishment, fail to substitute suitable wholesome foods, and therefore suffer from an impoverished diet. Their poor health witnesses against the cause which they are supposed to represent.

Again, some people believe so fully in a simple diet that they think it makes little difference what they eat or how it is prepared, provided it is simple. Their restrictions result in malnutrition, ill health, and a false representation of dietetic reform. Of the two extremes, indulgence and undue restriction, the latter is probably worse in its direct results. If there is one thing more important than another it is that the system should be fully nourished. Reason and conscience must control the appetite from overindulgence, and common sense and wise planning must provide an ample dietary of palatable, wholesome food.

The advocates of a single group of foods, and in some instances, of a single food of a group, make a big mistake. An all-wise Providence has supplied the human family with a large variety of good foods for a purpose,—to enjoy them. The human system is prepared to use a variety of foods, not at one time, but from time to time. Eating the same thing day after day pall the appetite and injures the best digestion.

We cannot consider all the dietetic fads, they are too many. There are people who find the food problem no problem at all. They are normal beings, who provide a liberal supply of good, wholesome food, see that it is properly prepared, eat what agrees with them and gives them proper nourishment, and then let it alone. They know the fundamental principles of healthful eating,—simplicity, palatability, nourishment, wholesomeness, and individual adaptability. They do not need to bother about numerous health ideas, and the voluminous instruction of would-be reformers. They go by principles, and principles do not lead to fads.

The fact that some peculiar individual has found it possible to live on green corn, or raw wheat, or peanuts, or carrots, or fruit and cereals, or any limited dietary, is no reason why another man can or should do the same. Nor does it follow that time-tried foods are failing us. Each human body has individual characteristics, and a diet suited to one may be wholly unsuited to another. Even with the same individual, varying conditions of climate, employment, or disposition must be considered. An outing or a day of unusual exercise will call for a meal that would be out of place on an ordinary day.

It is impossible to make an ironclad rule to suit every one's needs. No one can lay down an arbitrary law for all to follow, and no one can be critic for his fellows. The important thing is to choose from foods that are good such as will best suit one's individual needs.

An excellent injunction is given by the apostle Paul: "Whether therefore ye eat, or drink, or whatsoever ye do, do all to the glory of God." 1 Cor. 10:31. There will be no foolishness or fanaticism in that.

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#### A VEGETARIAN DIET ADEQUATE

If we attempt to separate fact from fancy in an estimate of the nutritive significance and possibilities of a vegetarian diet, there can be no question regarding the actual possibility of sustaining life with foods drawn exclusively from plant sources. Careful studies of the metabolism of individuals living largely or entirely on such dietaries, are available in sufficient numbers to demonstrate with scientific accuracy what familiar observation has long indicated.—*R. H. Chittenden, Ph. D., in Osler's Modern Medicine.*

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# AS WE SEE IT

## VON NOORDEN EXPLAINS DANGER OF VEGETARIANISM

PROF. CARL VON NOORDEN, of Vienna, one of the greatest European authorities on nutrition, makes no objection to a "fleshless" diet, but against strict vegetarianism which excludes the use of milk, butter, eggs, and cheese, he raises a warning. Admitting theoretically that the vegetable kingdom contains everything necessary to a satisfactory dietary, he objects to a strict vegetarian diet on the ground that such a diet containing sufficient protein would be too bulky. To reach the very moderate amount of 70 grams of protein, he says, six to seven pounds of vegetables must be eaten daily. This would lay an immense burden on the digestive apparatus.

With due respect to Professor von Noorden's learning and position, we must dissent. One who gives up milk, eggs, cheese, and the like, does not have to subsist on carrots and cabbages. It is possible to make up many strictly vegetarian dietaries without having the food too bulky. In order to simplify matters, I will illustrate with single articles.

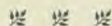
Of dried beans, peas, or lentils, it would require 12 ounces, yielding about 1,200 calories, to make up the required protein. If one ate that much of stewed dry beans, he would of necessity take of other foods sufficient to make up the 2,500 or 3,000 or more calories of the daily intake, foods with no protein. If he used other foods containing protein, he could lessen the quantity of beans used.

From less than two pounds of white bread — which is not noted for its richness in protein — one would get the requisite 70 grams, and one would get more than a sufficiency of protein from 20 ounces of macaroni. Now no one is going to partake of single articles in this

way, but this illustrates the fact, which is borne out repeatedly by those who practice strict vegetarianism from principle, that it is entirely practical to obtain a sufficiency of protein without making the meals too bulky.

Undoubtedly because of poverty, or because the principles of nutrition are not understood, many people on a vegetarian or near-vegetarian diet, suffer for lack of some necessary ingredient — such as the so-called vitamins — which may be the determining factor in the production of some such disease as pellagra or tuberculosis. For this reason it is often safer to add to the non-meat dietary some other animal food, such as milk or eggs, — not that the elements contained in these foods are not found in the plant kingdom, where the cow and the hen get them, but that in restricted vegetarian diets such as are often the portion of the poor, these essential elements may be lacking. Pellagra makes headway among those who have no cow nor poultry, and who live on white-flour biscuits raised with baking powder, on milled cornmeal, molasses, and fat pork. Such a diet is wholly one-sided and unsatisfactory, and it is not surprising that pellagra has made headway where such food is the mainstay.

G. H. H.



## NUTRITIVE DISORDERS FROM A FLESH DIETARY

THE objections to a flesh dietary, or to one containing a liberal amount of flesh, are not all owing to the disease of animals. If we might have meat from ideally healthy animals, there would still be certain objections to such a dietary from a health standpoint.

And on this subject I shall quote, not from men who are committed to a propaganda for vegetarianism, but from physicians who through personal experience



have come to appreciate the importance of treating certain nutritive disorders by means of a restricted non-meat diet.

Bishop, who has given much study to diseases of the heart, circulation, and kidneys, has come to the conclusion that these diseases are brought on largely by a diet containing a protein of animal origin. For instance, "I have observed examples in which almost fatal heart disease developed from the excessive eating of fish, many others are damaged by an excess of eggs, and a still greater number by meat. When the process is started, even a very small quantity of the offending food can keep the damage going on."<sup>1</sup>

On the basis of these observations Dr. Bishop advises a "few-protein diet," in order to avoid if possible the danger of giving the patient some protein to which he is sensitized. He says:—

"A person eating the great variety of protein foods found in a modern dietary is laying himself open to the attack of many different kinds of amino acids, any one of which may be the one which is to do him harm. If he cuts out one half of his proteins, he is by that much safer. If he is willing to do with a single protein, he is almost certain, on the theory of chances, to escape that which will do him damage."

When there is a suspicion of commencing trouble, he advises castor oil "and a temporary diet from which eggs, fish, meat, and soups are excluded, cheese being allowed to supply nitrogen in the safest form."

L. Duncan Bulkley, A. M., M. D., dermatologist, physician to the New York Skin and Cancer Hospital, has observed that the use of animal foods is responsible for certain skin diseases, and has often cured such diseases by a restricted rice diet.

Commenting on this, he says:—

"We all realize that protein is necessary both for building up and the regeneration of

the cells which compose the body; living protoplasm, whether differentiated or not, must contain nitrogen, in addition to its many other component substances. Man seeks this protein largely in the flesh and products of the animal kingdom, and by the gratification of the taste for these substances the system is often so overloaded with nitrogenous elements and their decomposing products that various diseases result."

G. H. H.

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#### DISEASED MEAT IS NOT DISEASED

AN outbreak of trichinosis followed the eating of pork. Damage suits were instituted against the man who sold the meat. In the first case tried, physicians testified that with proper inspection the trichinæ could have been discovered in the pork, and the suit was decided against the seller of the meat.

In the second case, Dr. Charles Wardell Stiles, professor of zoölogy, U. S. Public Health Service, well known for his work on hookworm, testified that no inspection could guarantee the absence of trichinæ from pork, and that raw pork is therefore not a proper article of food. The trial judge ruled out this testimony because of a certain ruling of a higher court, and decided the suit in favor of the plaintiff. Later cases before other judges were decided in favor of the defendant who sold the meat.

On account of the interest aroused, Dr. Stiles has contributed to the *Journal A. M. A.*, March 3, 1917, an article in which he holds that in the laws forbidding the selling of diseased meat for food the word "diseased" should be understood to mean "likely to produce disease when eaten by human beings."

He says that if the law is interpreted in its popular sense, "it will be found that from the standpoint of the parasitic infections this interpretation would exclude all meats from sale, for probably no animal that has ever been slaughtered for food has been entirely free from infection by one parasite or another. . . . If all animals harboring animal parasites are to be construed as 'diseased' in the sense of the food laws, as they are undoubtedly 'diseased' from

<sup>1</sup>This and other quotations from Dr. Bishop are from "The Prevention of Arteriosclerosis and Heart Disease in Otherwise Healthy Individuals Past Middle Life," a paper presented at the Fifteenth International Congress on Hygiene and Demography, Washington, D. C., Sept. 27, 1912, by Louis Faugeres Bishop, A. M., M. D., clinical professor of heart and circulatory diseases, Fordham University School of Medicine; physician to the Lincoln Hospital, New York.

<sup>2</sup>*Medical Record*, March 4, 1916.



the abstract academic point of view, it is clear from the zoölogic point of view that no meat can be sold legally."

Dr. Stiles goes even farther, to the effect that inasmuch as it is impossible to determine by inspection that pork is free from trichinæ, the presence of trichinæ should not necessarily be a bar to its sale; at least, the man who sells such pork should be absolved from responsibility. The people are fully warned by the government regarding the dangers of eating raw or insufficiently cooked pork; and if they eat it in that condition, it should be at their own risk. So, if I understand Dr. Stiles, he would have even trichinous pork to be outside of the category of "diseased meat" under the food law.

This all makes interesting reading for those who do not rely upon meats for food. Perhaps when one who enjoys his juicy beefsteak or pork chop, or Frankfurter, reads it, he winces a little — and then forgets.

G. H. H.

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#### MEAT AS A FOOD —

##### A DIETARY FALLACY EXPOSED

Not infrequently the popular magazines give their readers some sound information regarding dietetics and hygiene. A few years ago the *Metropolitan Magazine* had an article by E. T. Brewster on "Meat as a Food," intended to correct some of the false beliefs regarding the importance of having flesh meat as a constituent of the diet. Notwithstanding the high prices of meat and the fact that it is difficult, if not impossible, to obtain ideally healthy meat, there is such a general belief that meat is absolutely essential to health that many feel that they must have meat regardless of its price or of its diseased condition. Perhaps a few quotations from Mr. Brewster's article will help such to get their bearings. After stating some of the current false beliefs regarding foods, Mr. Brewster says: —

"Our prejudice in favor of flesh in general has about equal standing with our prejudice

against the flesh of horses in particular. One is a survival from the days when our science was combating a belief in 'vital force.' The other is a survival from the days when our religion was struggling against heathen Saxons who feasted on horse meat in honor of Thor.

"The place where the first scientific dietitians went wrong is this: The muscle, when it does work, consumes its own substance. There is no question about that. *But it does not consume all its constituents equally.* The early physiologists assumed that it does, and that therefore the waste is to be renewed only by foods such as cheese, beans, peas, milk, and especially meat, all of which, like the muscle itself, contain nitrogen. As a matter of fact, a fact which was proved the very first time the matter was tested by direct experiment and has never been questioned since, the working muscle uses up its *non-nitrogenous* constituents, and needs therefore to be renewed by non-nitrogenous foodstuffs — starches, fats, sugars, gums, and the like.

"In fact, as we know now, the muscle is essentially a million-cylindere explosion engine, built of meat, but working on bread and butter, precisely as the simpler engines of automobile and motor boat are built of steel and work on gasoline."

Regarding vegetable foods, Mr. Brewster says: —

"There is an ancient superstition that vegetable foods are not nutritious. This is, of course, true if by vegetable foods one means turnips and carrots, which are mostly water. But in general the sugar and starch of vegetable foods and the protein of meats are, taken dry, just about equally nutritious, each having not quite half the value of the fats and oils. But meat as we actually buy it, is half, two thirds, or even three quarters water. Bread, on the other hand, is at least two thirds dry solids, while many of our hard-baked crackers, our flours and meals, our breakfast foods, and our dried peas, beans, and the like are pretty nearly solid nutriment."

Again, regarding meat as a source of protein, he says: —

"It is indeed true, as the dietitians-in-ordinary to the public are never tired of pointing out, that meat contains protein, and protein is essential to life. But practically all foods contain protein, fish and eggs as much as meat; beans, peas, and cheese considerably more. One might as well argue that because meat is more than half water, and water is essential to life, therefore one is to pay thirty cents a pound for steak for the sake of the water in it. Most of us consume from two to four times as much protein as we need, anyway."

This, we believe, is a true statement of what any physiologist or physician would admit, as regards body needs.

G. H. H.



IS A BUBBLE FOUNTAIN  
A SANITARY DEVICE?

SOME investigators have attempted to determine to what extent the bubble fountain obviates the dangers of the public drinking cup. As a result of a survey of all the fountains of the University of Wisconsin, they reached the conclusion that the ordinary bubble fountain is not free from objectionable features. Here is part of the report published in the *Journal of Bacteriology*:—

"In an experimental bubble fountain, *Bacillus prodigiosus*, when introduced either by means of a pipette or by the moistened lips, remained

in the water from two to one hundred and thirty-five minutes, depending partly on the height of the 'bubble.' Most of the organisms are flushed away, but some remain, dancing in the column much as a ball dances on the garden fountain, even though the bubble be increased to the impractical height of four inches."

To avoid this difficulty, they advise that the tube of the fountain be placed at an angle, so that the water cannot fall back on the column. Experimenting with an arrangement of this kind, they failed to find any germs in the water, even when samples were taken immediately after the introduction of the organism.

G. H. H.

## OUR WORK AND WORKERS

### Gungoobai—My Nurse in Training

MRS. M. D. WOOD

AFTER working hard about four hours at the desk, the medical missionary was told, "A Brahman woman wants to see you. She wants to be trained as a nurse."

The caller was sent for, and there appeared before me a timid Hindu woman of high caste. At once I recognized her as a widow—*horr*. Her head was shaved, and she wore no jacket, only a coarse white cloth draped over her body and around her head. Her legs and feet were bare. Her face was sad, and told its own story of a life of sorrow and misfortune.

"Salaam, bai, what do you want?" This I said softly and kindly. She smiled, her face lost its hard, sad lines, and I saw hope in her eyes.

"Madam, let me tell you my story. The civil surgeon at Thana [near Bombay] told me to come here to see if you would let me enter your class for nurses. I am not an educated woman, but I do want to do nurse's work. Please take me," she pleaded.

"But, bai, tell me of your people, your age, and why you want this training so badly." I guessed her age to be about thirty-five years.

She replied: "I was married when I was about six years old. My only child was born when I was about sixteen years of age. My husband died a short time after her birth, and I was left alone. My father called me to his home (my mother was dead then), and there I waited on him and my brothers for several years, when the plague came and swept my loved ones every one away, leaving only widows in the house. These returned to their homes, and I was left at the mercy of strangers. I worked as I could, and a relative helped me to get my little daughter married, and then I was all alone. Madam, I leave no one."

"Bai, can you read Marathi?" I asked.

"A little," she replied. "My father was having me taught when he died, and now no one cares about me. I have finished the second standard."



"But, bai, the rules require that a woman shall have passed the fifth standard in Marathi, and besides, we are all Christians here."

"I know it, Madam Sahib, but do try me. Teach me Marathi, and I will try hard to learn."

The result is Gungoobai is one of the hardest-working nurses in the dispensary. We appointed one of our nurses (who was a teacher before she came to us) to spend an hour every day teaching Gungoobai her own language; and how faithful this heathen woman is in her classes and her duties!

When I was called out into a village some time ago to see a poor sick woman, Gungoobai was with me. The patient was so ill we had to remove her to the dispensary, where we now have twelve beds, and we needed men to help carry her. Although she was a high-caste woman, the villagers, like the Levite, "passed by on the other side," and we had only the husband and the tonga driver. We needed two more, and we urged the people standing around to help. No one came. Finally Gungoobai stepped up and cried, "What mean you

all to stand by, look on, and do nothing? What is Hinduism? What use is all your worship? Who has come today to the help of this woman? Not the Hindu, not the Mohammedans, but a Christian! Not your caste mate, not your color, not your countryman, but a lady from the white man's country, is here in this little village ready and willing to help us Hindus; and you will not help carry this woman to the tonga? This is the fruits of Hinduism. I am ashamed of Hinduism."

Reader, I was surprised. I could add nothing to her passionate appeal for help. I waited. She stepped forward to take her place at a corner of the rude stretcher we were using to convey the patient to our carriage. Immediately one young farmer took the opposite side, and the woman was borne by her husband, our nurse, her neighbor, and our tonga driver.

Please pray for Gungoobai. In July she begins a systematic course of Bible study. I long to see her bow at the foot of the cross, and hear her proclaim my Jesus her Christ.

*Kalyan, India.*



MRS. WOOD AND HER HELPERS



# QUESTIONS AND ANSWERS

Conducted by J. W. Hopkins, M. D.

Washington (D. C.) Sanitarium

This is a service for subscribers to LIFE AND HEALTH.

If a personal reply is desired, inclose a two-cent stamp.

If you are not already a subscriber, send also the subscription price with your question.

Replies not considered of general interest are not published; so if your query is not accompanied by return postage for a personal answer, it may receive no attention whatever.

Remember that it is not the purpose of this service to attempt to treat serious diseases by mail. Those who are sick need the personal examination and attention of a physician.

State your questions as briefly as possible, consistent with clearness, and on a sheet separate from all business matters. Otherwise they may be overlooked.

For prompt attention, questions should be addressed to J. W. Hopkins, M. D., Takoma Park, D. C.

## Lentils and Legumes

"Are lentils and legumes valuable as food-stuffs? Is ordinary American cheese recommended as a good food?"

The term "legumes" covers the seeds known as peas, beans, lentils, and Japanese or soy beans. These seeds are very rich in protein, and in addition, have a large per cent of starch. When cooked until well done, and if necessary put through a colander to remove the hulls, they are a very palatable, nutritious, and easily digested food for most people.

The American cheese referred to is the cheese which can be made at home by the ordinary souring of the milk, or by souring it with lemon juice. A better grade of this cheese is made by using a preparation of the lactic acid bacillus, as yogurt tablets or some other reliable preparation of the same kind, to sour the milk. The ordinary commercial American cheese as found in the market is not to be recommended as a food, as certain toxins are produced in its manufacture and cure.

## Cold in Head

"A child three years old has a cold in the head. What treatment do you advise? Is castor oil a reliable remedy for constipation in children?"

In the treatment of a cold in the head of a three-year-old child, one of the most important measures is designed to raise the general vitality of the child. Proper feeding at the right times, plenty of sleep and fresh air, carefulness in bathing, that the child does not take more cold, and regulation of the bowels, are measures of greatest importance.

Castor oil is one of the best laxatives for children, but should not be used very often, as it tends to constipate the bowels afterward. The use of a good grade of mineral oil is to be preferred. Squibbs is very reliable.

Camphorated oil dries up and checks the secretions. It is not injurious to a young child in any way, unless too much is used. Camphorated oil applied to the chest and nose will help to check the secretions. If the cold is tight, it is better to use a mixture of one part oil of eucalyptus to four or six parts of olive oil, applying it in the same way as you do the camphorated oil.

Other treatments are to be found in Dr. Heald's book, "Colds: Their Cause, Prevention, and Cure," and are reliable and effective.

An alkaline spray to the nose and throat is an excellent measure to clear the phlegm and mucus. This should be followed by a mild oily spray containing about five grains each of camphor and menthol to the ounce of liquid alcoholene. The cleansing spray and the oily spray can be applied by the use of almost any atomizer. The DeVilbiss atomizer No. 16 has two bottles — one for the cleansing spray and one for the oily spray.

## Discoloration of Whites of Eyes

"What is the cause of a yellow discoloration of the whites of the eyes? What remedy do you suggest?"

The yellow discoloration of the whites of the eyes is often caused by some liver trouble. Keep the bowels well regulated, and avoid overeating. Drink plenty of water between meals.

This condition is often found in anemia. You should have a physical examination, including examination of the blood and urine. It would also be well to have the gastric and intestinal contents examined.

## Nervous Trouble

"What do you advise in a case of nervous trouble in a man 69 years of age, 5 feet 5 inches tall, weighing 200 pounds? Farmer by occupation. Bones are weak and get sore and stiff, and arms from elbows down are weak and pain terribly."

You are greatly overweight, and are probably suffering from retention of waste matters in your system. You should reduce your weight by means of the proper diet. The best way to do this is to eat less at each meal. Do not use so many different articles of food at a meal, but rather make the variety at different meals. Eat less of each article, and endeavor to lose one or two pounds a week. Avoid flesh-making foods, as butter and cream. You should not eat flesh of any sort, nor should you use tea or coffee. Milk or buttermilk will be better.

There may be some chronic disease of the heart, blood vessels, or kidneys, and I believe that a thorough physical examination by a competent physician is of the greatest importance.



**Milk Diet**

"Is the milk diet a cure for intestinal toxemia? Are cascara and senna good laxatives, and are they harmful in any way? Can incompetency of the ileocecal valve be cured without an operation? Is ordinary buttermilk as beneficial as the Bulgarian ferment or other milk ferments that are on the market?"

In properly selected cases the sweet milk diet is a cure for intestinal toxemia; that is, a diet which consists of milk alone in the right quantities, taken at stated periods during the day. If this diet is maintained for the necessary time, it will result in a change of the intestinal flora from the harmful bacilli to the friendly bacilli. It will also produce a gain in weight.

Other methods of curing this disease are to use the ordinary buttermilk or the Bulgarian milk ferments in combination with an antitoxic diet. Dates are used at the same meal with the Bulgarian buttermilk; and dextrinized foods, as zwieback, corn flakes, and especially rice in some form with fresh, ripe fruits or well-cooked fruits, help the lactic acid bacilli in producing a healthy condition in the intestines. The Bulgarian milk ferment is superior to the ordinary buttermilk, as the former is soured by the lactic acid bacilli alone, the other bacilli having been killed in the preliminary heating of the milk. Ordinary buttermilk is soured by the common barnyard germs, and is apt to be more or less filthy. Ordinary buttermilk has very little cream in it, while the lactic acid buttermilk is made from whole milk.

In taking the course of treatment that you mention, cascara will prove beneficial, and in my opinion it is better taken after the meal, as your doctor advises. The doses should be only large enough to produce the results. Cascara is a very valuable laxative, as it will not produce a habit, and can be reduced in dosage. Senna tea is very good also. Senna leaves may be cooked with prunes or figs, adding to their value as laxative foods. These laxatives are the least harmful of any, but the better way to cure constipation is by means of proper diet and exercise. This, however, should be under the direction of your physician.

Many cases of incompetency of the ileocecal valve can be cured without an operation. The treatment is the antitoxic diet mentioned above, with exercise to stretch and strengthen the abdominal muscles, and mild laxatives to regulate the bowels. For the latter condition, the use of a moist abdominal girdle at night is many times also beneficial. A good grade of mineral oil is an excellent remedy in this condition.

**Varicose Veins**

"What is the cause of, and treatment for, varicose veins?"

You will get great benefit from sponging your limbs alternately with hot and cold water. Light massage and rubbing from the ankles upward is also of great benefit.

You must make a practice of spending at least an hour every day lying down with your lower limbs elevated on pillows. You should regulate the bowels by means of a laxative diet, and by the use of mineral oil at night, and a

small dose of cascara or of Epsom salts the next morning. The laxative medicines may finally be stopped.

The numbness in your hands and arms is probably due to the nervous condition accompanying the other trouble. You need to build up your general health in every way. Avoid all kinds of flesh foods, including fish and chicken. Do not use tea or coffee. Have regular hours for retiring and rising, and take the hot and cold application to your lower limbs when you rise in the morning, and when you retire. Try to keep off your feet, but get as much fresh air as you can every day.

**Diseased Tonsils**

"Is there any treatment that will help diseased tonsils? My wife's tonsils are bad, but she has a nursing baby, and does not wish to have them removed until after the baby is weaned. Can anything be done by way of local applications?"

The following prescriptions are very good:—

**DOBELL'S SOLUTION**

Sodium bicarbonate .....	30 gr.
Sodium baborate .....	30 gr.
Carbolic acid .....	6 gr.
Glycerin .....	1 dr.

Water sufficient to make eight ounces.

Mix, filter, and dilute with equal parts of water to use as nose or throat spray.

Menthol .....	5 gr.
Camphor .....	5 gr.
Liquid albolene .....	2 oz.

For use in atomizer after the cleansing spray.

Argyrol solution 25 per cent, one ounce. Swab throat twice a day.

If the tonsils are bad, she should not wait until the baby is weaned to have them removed, but should have them taken out at once by a competent surgeon. This will improve the character of the milk given to the baby, and will make it easier for her to feed the child. It will also give her a healthier condition of her own body. It is the thing to be advised by all means, if her tonsils are bad.

**Pinworms, or Seatworms**

"What is the cause of pinworms, or seatworms, and what is the best remedy for getting rid of them?"

The cause of pinworms, or seatworms, is infection from food, as fresh vegetables,—lettuce, celery, etc.,—or from the hands or clothes of a person who is troubled with the worms. The best means for ridding the child of them is to give him a small dose of a laxative, as castor oil or Epsom salts, and then follow this, after the bowels have moved, by a saline enema—a teaspoonful of salt to a pint of water—at a temperature of 102° or 104° F.

Santonin is also used in place of the castor oil, but should be given under a physician's supervision. Instead of the saline enema, you might put one ounce of quassia chips in a quart of water, boil down to a pint, strain off the water, and use it as an enema, retaining it for a little while. It may be necessary to repeat this treatment, but it is generally successful with one or two applications.



**Wrinkles in Face**

"Is the use of an electric vibrator calculated to remove wrinkles? What other treatments are good for removing wrinkles?"

I think that the intelligent use of an electric vibrator will prevent the wrinkles from appearing in the face. In addition to this, you will find that short applications of hot water, followed by a dash of cold water will increase the

vitality of the skin and tighten it. These applications should be given alternately, and the hot water should not be applied too long. Facial massage applied with the finger tips is also good.

I think that you should avoid the use of the skin foods, ordinary soaps, and powders so much advertised, as they are apt to contain adulterations which are deleterious to the skin.

## Sanitarium Notes and Personals

**St. Helena Sanitarium, Napa County, Cal.**

A covered walk connecting the chapel with the main building has just been completed. This will serve as a shelter both in fair and foul weather.

The senior class of 1917, conducted by M. W. Newton, of the Pacific Union College, enjoyed a visit to Mare Island Navy Yard.

**Iowa Sanitarium, Nevada, Iowa**

The sanitarium has been crowded for some time, and it has been necessary to place cots in the halls and parlor in order to accommodate patrons.

The ladies' bathroom is undergoing renovation. The improvements are well under way, and the room will soon be in good condition.

**Tri-City Sanitarium, Moline, Ill.**

Elder and Mrs. E. W. Webster, now located in Moline, have charge of the Bible classes in the sanitarium, in addition to their church work.

At times this winter the sanitarium has been so full that it was a matter of wonder how another patient could be taken care of, but it has not been necessary to turn any one away.

Dr. E. A. Warner is now physician in chief of the sanitarium.

**Walla Walla Sanitarium, College Place, Wash.**

Dr. John Reith, who reports a very large patronage, says that he is almost afraid to do anything that will bring more patients. He is more concerned about caring for those who come than about trying to increase the patronage.

A new elevator has been installed, which is giving much satisfaction.

In addition to making a number of improvements, the institution last year paid off \$2,500 of the indebtedness, and all interest and all bills have been settled to date.

**Sydney Sanitarium, Wahroonga, N. S. W., Australia**

This sanitarium has enjoyed excellent patronage the past six months. The receipts for the last five months of 1916 were \$4,000 in excess of the receipts for the same length of time the previous year.

Last year an experiment was made with newspaper advertising, which brought many inquiries and numerous patients.

A central and commodious building in the city of Sydney, located on the main street,

where thousands of people pass daily, has been secured for health food and restaurant work. There is a good patronage, and the attendance at the café is increasing daily.

**Glendale Sanitarium**

The nurses' training school of the Glendale Sanitarium will open August 15. Those who wish to avail themselves of the opportunity to gain a missionary nurse's training, should address the Secretary of the Training School, Glendale Sanitarium, Glendale, Cal.

**Boulder-Colorado Sanitarium, Boulder, Colo.**

The patronage this winter is the best that has ever been reported for this season of the year. It has been necessary to rent a dormitory for the employees, that the main building and cottages might be available for patients.

Dr. H. A. Green, medical superintendent, has purchased lots on the corner of Mapleton and Fourth Streets, just opposite the sanitarium grounds, where he expects to erect a cottage and be at home, yet within reach of the sanitarium at any time.

A large Scheidel-Western X-ray machine, recently installed, is giving good service under the direction of Dr. L. H. Wade, who recently joined the medical staff.

Mrs. Wade, wife of Dr. Wade, has been recently employed as dietitian, and her services are much appreciated by both the chef and the patients. She is devoting her time to this work, giving personal attention to the needs of those who require such service.

We are made sad to learn of the death of one of the recent graduates, Miss Ella Sheriff, a member of the 1916 class. Miss Sheriff left for her home in Kansas City about the first of the year, but was compelled to undergo an operation for mastoid trouble, from which she did not recover.

The sanitarium recently entertained in honor of the Retail Merchants' Association of Colorado. About seventy members of this association were guests at the banquet given in their honor.

All the members of the sanitarium nurses' training class were successful in passing the State examination. Nineteen members finished the probationary course and entered the intermediate course January 1.



# NEWS NOTES

## High Cost of Being Sick

It is announced that Boston physicians, in order to meet the high cost of living, have agreed to double the price of consultations and to raise the price of night calls.

## To Increase the Length of the Medical Course

The Illinois State Board of Health is planning to require all persons matriculating in that State after Jan. 1, 1917, to take six years of medical training, the sixth year to be a hospital internship in a hospital approved by the Illinois State Board of Health.

## A Practical Reform

A large corporation which serves lunch to its employees is doing efficient propaganda work for better living. In the belief that coffee is not a desirable drink for its employees, it furnishes coffee at 6 cents a cup, and certified sweet milk at 2 cents, or less than the wholesale price. The 4 cents difference works a change in overcoming prejudice and long-established habit that no amount of argument would accomplish.

## American Doctors for Great Britain

According to the London *Daily Telegraph*, arrangements are being made to replace with American surgeons some of the young surgeons in British hospitals, so that the latter will be free to enter the army. It is said that there are in Great Britain many physicians of military age who wish to join the army, but have been unable to do so because of the lack of substitutes for the home work, and that there are, on the other hand, many doctors in the United States who have volunteered to serve in the British Army, but whose services cannot be accepted, as they are not British subjects. They will, however, be acceptable as substitutes for the practitioners at home, who will thus be released for the front.

## Alcohol and Pneumonia

The United States Public Health Service brands strong drink as the most efficient ally of pneumonia. It declares that alcohol is the handmaiden of the disease which produces ten per cent of the deaths in the United States. This is no exaggeration. We have known for a long time that indulgence in alcoholic liquors lowers individual vitality, and that the man who drinks is peculiarly susceptible to pneumonia. The United States Public Health Service is a conservative body. It does not engage in alarmist propaganda. In following out the line of its official duties, it has brought forcefully to the general public a fact which will bear endless repetition. The liberal and continuous user of alcoholic drinks will do well to heed this warning, particularly at this season of the year, when the gruesome death toll from pneumonia is being doubled.—*Ohio Bulletin*.

## Law Permitting Mailing of Poisons

An effort will be made to induce Congress to pass a law permitting medicines consisting wholly or in part of poisons or anesthetics, when inclosed in packages in conformity with the postal regulations, to be transmitted in the mails, from manufacturers or dealers, to licensed physicians, surgeons, pharmacists, dentists, and veterinarians.

## Nuxated Iron

"Nuxated Iron" is essentially secret in composition, and while the public is led to believe that the preparation consists chiefly of nuxvomica and iron, analyses indicate that it contains much less than an ordinary dose of iron and a negligible amount of nuxvomica. It is sold under claims that are both directly and inferentially false and misleading, not only in regard to its composition, but also as to its alleged therapeutic effects.—*Journal A. M. A.*

## A Vegetarian Giant

Dusty and travel worn, but with his long strides retaining the vigor of all his eighteen years of backwoods life, Clarence Barton trudged into Clinton, Mo., after covering 130 miles from Turner, Mo. In all his eighteen years he never tasted a mouthful of meat. Never has a drink of tea or coffee passed his lips. His meager fare of daily food has never been seasoned with pepper. He never has tasted a drop of alcohol in any form, and does not know the twang of tobacco smoke—a young backwoods giant.

(Continued from page 147)

Exercise 11: With the arms extended sideways shoulder high, and the palms up, (a) bend head backward, raising the arms upward to the stretch position above the head. (b) Lower the arms to the starting position, raising the head. Repeat this exercise five to ten times.

Exercise 12: With the thumbs in the armpits and the fingers forward on the chest, elbows shoulder high, (a) inhale, drawing the elbows well backward. (b) Exhale, pressing the elbows forward and emptying the chest completely. Repeat this exercise from six to fifteen times.



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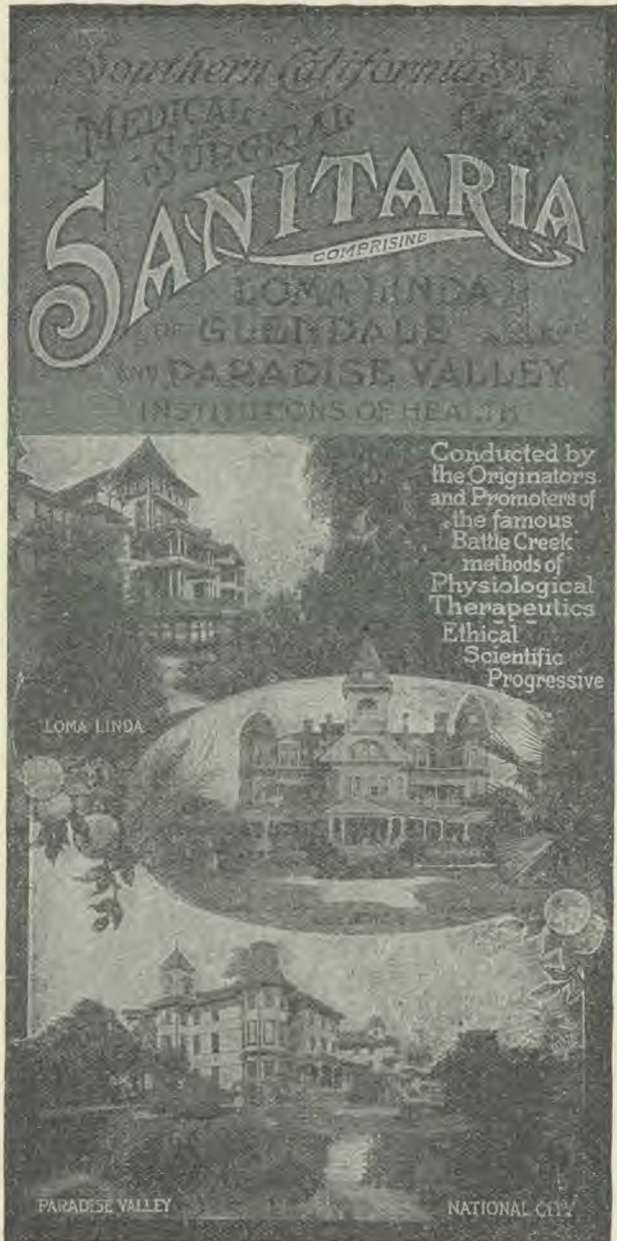
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ANNEX

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