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Life & Health

Published monthly by the
REVIEW AND HERALD PUBLISHING ASSN., TAKOMA PARK, WASHINGTON, D. C.

Entered as second-class matter June 24, 1904, at the Post Office at Washington, D. C., under the Act of Congress of March 3, 1879

Acceptance for mailing at special rate of postage provided for in Sec. 1103, Act of Oct. 3, 1917, authorized on June 22, 1918.

VOL. 34 JANUARY, 1919 No. 1

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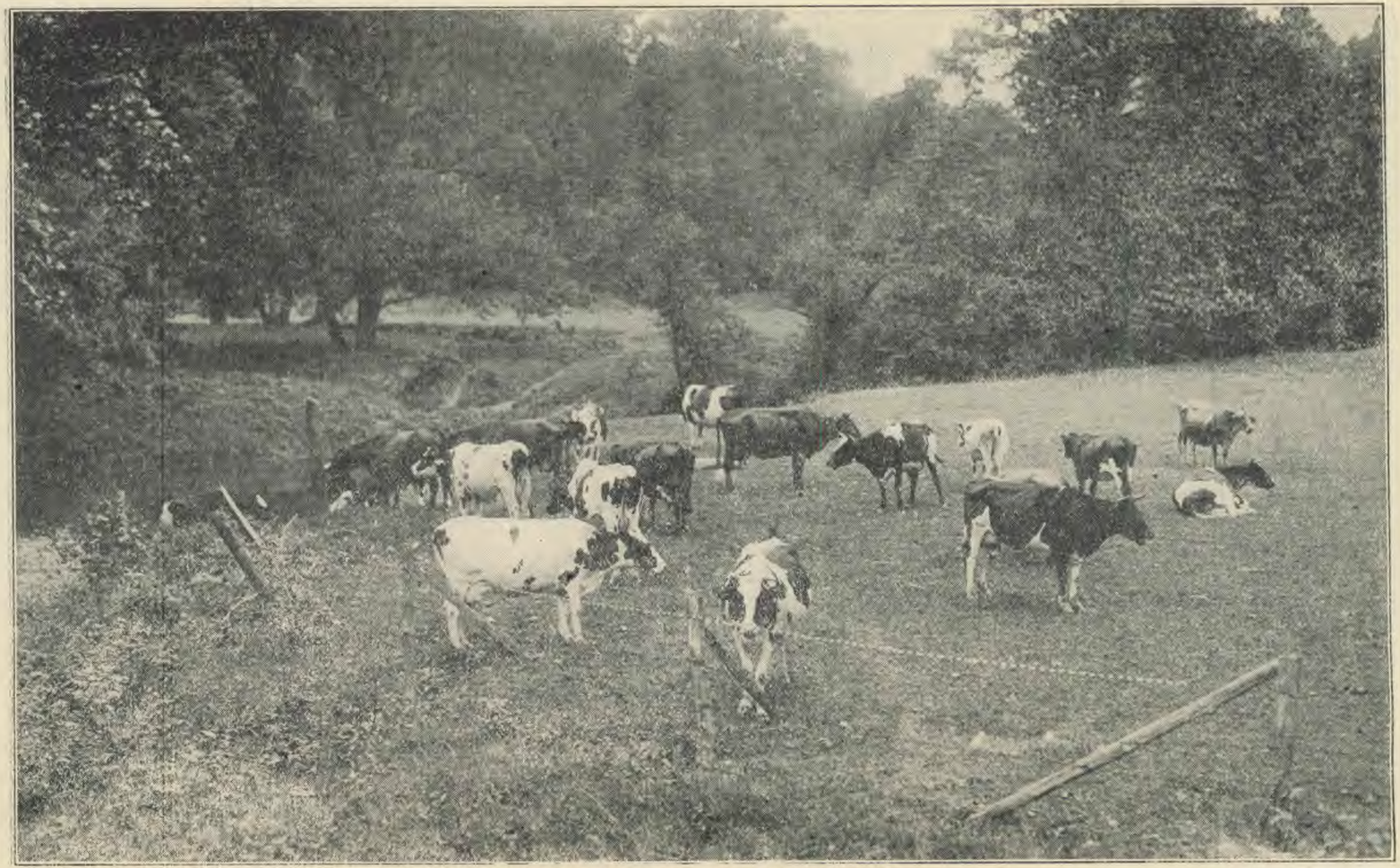

A SHADY PASTURE NEAR ROCKVILLE, MD.

Life & Health

HOW TO LIVE

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VOL. 34 JANUARY, 1919 No. 1

THE PLACE OF MILK AND VEGETABLES IN THE DIET

H. C. Sherman, Ph. D.

Columbia University, New York City

[The following is the first portion of an article which appeared in full in the June issue of *American Medicine*. The remainder of the article gives the result of a study of the dietaries of ninety-two families, made under the auspices of the New York Association for Improving the Conditions of the Poor, showing, among other things, that the amount of protein, phosphorus, calcium, and iron in the dietary ran parallel with the expenditure for milk. And notwithstanding the fact that the families which paid least for milk paid most for meat, their intake of protein and the essential minerals was less than of those who expended more for milk. In other words, those who purchased freely of milk had a much better balanced and more nourishing menu. The entire article is well worth careful study.— ED.]

MILK is the one article of diet whose sole function in nature is to serve as food, and it is the one food for which there is no satisfactory substitute.

Even from the standpoint of the older conception of food value, milk takes a high rank on account of the forms and proportions in which it furnishes us with proteins, fats, and carbohydrates. Compared on the basis either of protein or of energy value, the dairy cow is the most efficient of farm animals in the production of human food.

Armsby has recently estimated that of the energy value of the food consumed by the animal, about 18 per cent is recovered for human consumption in milk and only about 3.5 per cent in beef.

Jordan compares on the basis of pounds of edible solids in human food produced per hundred pounds of digestible organic matter consumed by different farm animals, as shown in Table No. 1.

TABLE NO. 1

Animal	Edible Solids Produced
Cow (milk)	18.0
Pig (dressed)	15.6
Cow (cheese)	9.4
Calf (dressed)	8.1
Cow (butter)	5.4
Poultry (eggs)	5.1
Poultry (dressed)	4.2
Lamb (dressed)	3.2
Steer (beef)	2.8
Sheep (mutton)	2.6

TABLE NO. 2

	Protein Pounds	Total Food Calories
Milk	72.3	711,750
Beef	18.5	130,000
Pork	22.7	672,945
Mutton	14.7	137,295
Poultry and eggs	27.5	148,675

Cooper and Spillman estimate that the crops produced per acre of cultivated farm land will yield returns in human food, when fed to the various farm animals, as shown in Table No. 2.

Thus it is inherently much more economical of resources to feed farm crops to milch cows than to animals which are raised merely for slaughter, and consistently with this we usually find that milk is a cheaper source of protein and calories to the consumer than is meat or eggs, unless some special marketing or other condition intervenes to interfere with normal economic relationships.

But when we take the broader view of food values, which our present knowledge of nutrition justifies and demands, we must conclude that a quart of milk is a greater food asset than an amount of meat which should furnish the same weight of protein and the same number of calories; and this for a number of reasons.

1. The chemical structure, or amino-acid make-up, of the milk proteins gives them exceptionally high nutritive efficiency, as has been strikingly demonstrated in experiments upon both growth and maintenance by Osborne and Mendel and by McCollum, and upon milk production by Hart and Humphrey.

2. The fat of milk is of a low melting point as compared with most meat fats, and exists in an emulsified form, both of which properties are favorable to its ease and completeness of digestion. It also carries a fat-soluble substance which promotes growth and has important functions in maintenance of health as described below.

3. The carbohydrate content of milk is in the form of milk sugar, which is not only easy to digest, but also has a more or less specific favorable influence upon the bacterial conditions in the digestive tract as has been recently emphasized by Rettger's extended research.

4. Milk contains all the inorganic elements or ash constituents required in human nutrition, and furnishes them in exceptionally favorable proportions. In many experiments by Osborne and Mendel and by McCollum and his associates, the growth and well-being of laboratory animals kept on restricted diets have been very greatly promoted by adding to the rations such salts as would give to the total inorganic content of the food mixture a composition corresponding to that of milk ash.

5. Milk is especially important as a source of essential nutrients other than proteins, fats, carbohydrates, and mineral matter. That something other than these known nutrients is required for permanently adequate nutrition, and that milk supplies the unidentified essential substance or substances, was first demonstrated by Hopkins in 1906. Seeking further light upon the chemical nature of the unidentified essential or essentials, Hopkins deferred publication of the details of his experiments until 1912. Meantime Osborne and Mendel had

"We now see that milk is much more than a substitute for meat — in fact, that meat is a very inadequate substitute for milk."

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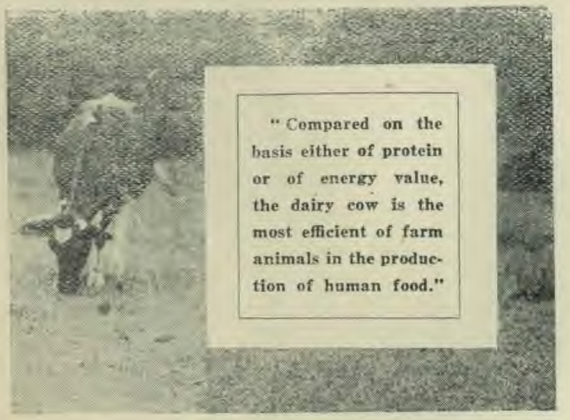
Cowboys Butchering Beef



shown that "protein-free milk" contains a water-soluble substance or substances not identical with any known organic or inorganic nutrient, which exerts a pronounced favorable effect both upon growth and upon the health and longevity of laboratory animals kept upon mixtures of isolated foodstuffs; and at about the same time it was simultaneously discovered by McCollum and Davis and by Osborne and Mendel that milk also contains another essential substance distinguished by its solubility in fat, and therefore for the most part dissolved in the fat globules, and passing with them into the butter rather than into skim milk or whey.

"Armsby has recently estimated that of the energy value of the food consumed by the animal, about 18 per cent is recovered for human consumption in milk and only about 3.5 per cent in beef."

Stockyards, Kansas City, Mo. © Detroit Pub. Co.

These two important constituents, neither of which has yet been chemically identified, are variously designated as "accessories," "dietary essentials," "food hormones," fat-soluble and water-soluble "vitamines," or "fat-soluble A" and "water-soluble B."

A diet, in order to be adequate, either for the permanent maintenance of health, in a grown animal or person, or for the support of growth in the young, must contain sufficient amounts both of fat-soluble A and of water-soluble B. Lack of either A or B quickly retards or inhibits growth. In adults, lack of water-soluble B causes polyneuritis (beriberi in man, experimental beriberi in fowls), while lack of fat-soluble A results after a time in pathologic condition often manifested by weakness and inflammation of the mucous membranes, especially of the eyes (xerophthalmia), and it is held by McCollum that lack of this fat-soluble A is one of several factors concerned in pellagra.

In his recent series of papers dealing with the "Biologic Analysis of Pellagra-Producing Diets," McCollum repeatedly points out that rations consisting too exclusively of the products of cereal grains or other seeds are not permanently satisfactory, and that their inadequacy lies chiefly in their low content of calcium and of fat-soluble A. Milk he finds to be the most efficient food in supplementing a grain diet because of its richness in calcium and in fat-soluble A, and the further advantage that the milk proteins supplement in an important way the proteins of the grains and other seeds, especially in those cases in which the requirements of growth, reproduction, and lactation are concerned.

Next in importance to milk as supplements to breadstuffs or other products of seeds, McCollum ranks the green vegetables or edible leaves, and this chiefly for the reason that leaves are very much richer than seeds in calcium and in the fat-soluble A. In the Orient, where very little milk is available to the majority of the inhabitants, green vegetables largely take the place of milk in the nutrition of the people. My student, Mr. Y. G. Chen, considers that such vegetables are probably five times as prominent in the Oriental as in the American diet. That children in the Orient fare as well as they do with a low per-capita milk supply, is

probably explained by the much longer time during which they receive their mother's milk. With nursing continued often for two full years, and not rarely three, the child has ample time to become adjusted to the consumption of a variety of vegetable foods before its maternal milk supply is entirely cut off. It is also not improbable that the free use of green vegetables, with their high calcium and vitamine content, in the food of the mother may be a factor in her ability to continue normal lactation for such a long period, since according to McCollum the vitamines found in milk are not synthesized by the animal, but must ultimately be derived from the food. Since animals store but limited amounts of vitamine in their muscles but pass relatively large amounts into their milk, it is plain that as a "condenser" of vitamines as well as of protein and energy for man's nutrition, the milch cow is much more economical and efficient than is the animal fed for slaughter.

So long as we thought of nutrition in terms of proteins, fats, carbohydrates, and calories only, we were inclined to assume that a diet consisting largely of breadstuffs or other grain products could be "balanced" by the addition of meat. In fact, it has long been more or less common to think of meat as the animal food par excellence, and milk has often been spoken of as a "meat substitute." We now see that milk is much more than a substitute for meat — in fact, that meat is a very inadequate substitute for milk.

If a grain diet were deficient only in its protein content, milk and meat might serve interchangeably as supplements. But in prolonged feeding experiments, milk is found to be vastly superior to meat. Neither in its inorganic nor in its vitamine content is meat suited to take the place of milk or green vegetables in nutrition. The inadequate calcium content of meat has long been known, and the inefficiency of ordinary meats (muscle) as source of vitamine has recently been strikingly demonstrated by Osborne and Mendel and also by McCollum and Simmonds. Hence we can no longer think of milk and meat as interchangeable, or of meat as a full equivalent of milk in the diet.

Is Human Dietetic Instinct Trustworthy?

G. H. Heald, M. D.

"WHAT and How Much Should We Eat?" is the title of an article in the September *Atlantic Monthly*, written by Thomas Burr Osborne, well-known investigator of nutrition problems, in which he concludes from certain experiments upon animals that "perhaps it might be well to pay a little more respect to instinct than has lately been the fashion." No harm would be likely to come from this conclusion were it not overworked in attempts to represent Professor Osborne's views, such as occurred in a recent editorial article in the *Independent*.

The experiments from which Professor Osborne drew his conclusion were performed on growing pigs. Pigs allowed to feed themselves "*ad libitum* with corn, meat-meal, oatmeal, salts, and the like, from separate hoppers," ate during early growth "much larger proportions of protein than when growth became slower. Later, when smaller amounts of corn were eaten, the protein deficiency thus caused was met by an increase in the amount of meat-meal eaten." It would seem that these pigs — allowed the freest scope in the choice of food — grew more rapidly than any pigs fed by the formulæ of

Woe unto you Jeremiahs of dietetics, who have been making us sad with your preachments! You who have told us that we dig our graves with our teeth; and that we all surely shall die too soon, because we like beefsteaks and puddings at night, and fried eggs with liver and bacon and griddle cakes for breakfast. You are exposed and brought to shame. A greater than you has undone you. He is Thomas Burr Osborne by name. . . . A plenty of other data and reflection have entered into Professor Osborne's induction that the American people do not after all eat too much. . . . The most important part of it consists essentially of two propositions; one that the body must as a rule get a good deal more food than it can assimilate, so that it may both keep a margin of safety and have at all times a sufficient quantity to pick and choose from the specific and often relatively rare chemical compounds at the moment needed; the other, that the body normally has ways of disposing of and getting rid of temporary surplus before injury is done.— The Independent, Sept. 14, 1918.

Until investigations now in progress are completed, we can give only general advice. In the meantime, I believe that instinct is a safe guide, that it is prompting us to eat the kinds of food that we should. In general we eat very nearly the amount of food that we really need. He who does hard physical work needs to eat more than does the sedentary brain worker whose labor involves no expenditures of energy that must be supplied by extra food; and so he who works with his brain instinctively eats less than he who works with his muscles.— Thomas Burr Osborne, in the Atlantic Monthly.

"agricultural experts, trained both in the science of nutrition and in the practice of the art of feeding." The pigs evidently knew what they needed better than the scientists. A series of experiments performed in Professor Osborne's laboratory on albino rats bore out the conclusions from the experiments on pigs.

The inference from these experiments is that the human pig, left to himself and given an abundance from which to select, will thrive better than if he is hampered by diet prescriptions, marked menus, and the advice of diet cranks. Without taking space to follow at length Professor Osborne's article, we desire to consider certain facts which have a very evident bearing on the question.

It would be foolish to deny that in a measure the human race has an instinct that leads to the consumption of fairly adequate foods. If this had not been so, the race would have been exterminated long ago. Notwithstanding the densest ignorance regarding nutrition and food values, savages manage from their surroundings to secure foods that suffice to perpetuate the race from generation to generation. But this is far from saying that these savages, by instinct, select a diet that is completely adequate and well balanced, and without any excess. In a general way we may admit that man by nature — or by "instinct," if you will — chooses on the whole such foods as will yield a measure of life and efficiency. But can we be assured that the unrestricted submission to "instinct," unguided by a knowledge of physiological needs, would yield the maximum of health and efficiency? If so, we should have been a race of giants by this time.

"A horse fed for some time on hay and oats is almost frantic to obtain green food."

In the first place, so-called dietetic "instinct" is very much obscured or modified by dietary habits and prejudices. Recently it has been reported that many of the Southern boys, brought up on a one-sided diet consisting largely of corn bread, pork, and molasses, find it difficult to accustom themselves to the better-balanced ration of the army camps. It has also been reported, by those working among pellagrous families, that when a family is given a more nearly balanced diet, and the relation of faulty diet to pellagra is carefully explained, some members of the family will persist in adhering to the old diet. Another wholesome example of the strength of dietary habits is the aversion of one people or nationality to the foods relished by another people. These food preferences are evidently a matter of habit and prejudice, not of instinct. And yet, on the whole, the various nationalities have, from their surroundings, managed to obtain combinations of food which must have been fairly adequate for sustenance.

One recalls the example of the peasants of southern Italy, mentioned by Prof. Graham Lusk, who, with access to scarcely any animal protein, have for generations built up magnificent physiques, living principally on corn, olive oil, and green vegetables. Not so long ago, scientists would have called this an inadequate diet. Now it has been shown that green vegetables supplement the deficiencies of the corn and the oil. Here is an instance where instinct had preceded science by centuries. A horse fed for some time on hay and oats is almost frantic to obtain green food. He does not need some food expert to instruct him as to this need; on

Cornaro says of himself ("The Art of Living Long," Wm. F. Butler, Milwaukee, 1916, p. 44 et seq.): "After every known means of cure had been tried, without affording me any relief, I was, between my thirty-fifth and fortieth years, reduced to so infirm a condition that my physicians declared that there was but one remedy left for my ills, . . . the temperate and orderly life. . . . I understood that I was not to partake of any foods, either solid or liquid, save such as are prescribed for invalids; and of these, in small quantities only."

Evidently his was a desperate case. He finally yielded, gained perfect health, and then began to experiment on foods. "I determined," he says, "to experiment with those which were most agreeable to my palate, in order to learn if they were suited to my stomach and constitution. The proverb, 'Whatever tastes good will nourish and strengthen,' is generally regarded as embodying a truth, and is invoked as a first principle by those who are sensually inclined. In it I had hitherto firmly believed. . . . My experience, however, proved this saying to be false." Some of the foods he was most fond of he found to be injurious. And in the matter of quantity, he found that "instinct" was not a safe guide. "I accustomed myself," he says, "to the habit of never fully satisfying my appetite, either with eating or drinking — always leaving the table well able to take more." As a result of this program, he, a physical wreck at forty, regained perfect health, and lived to be more than a hundred.

the other hand, when deprived for a time of a certain food, like oats, he may, if he gains access to the oat sack, overeat to his injury. The instinct is imperfect.

These are a few familiar examples illustrating the fact that to a certain extent there is an instinct guiding each race, human or subhuman, but not necessarily guiding it unerringly to the very best; else, should we not see all peoples who live under like conditions of climate and work, craving the same or equivalent foods? On the contrary, we sometimes see in one family a member who greatly enjoys the pleasures of the table, and although he would do almost anything in the world to reduce *except to put himself permanently on a light diet,* he continues to put on weight. And another member of the same family, underweight and undernourished, finds it difficult to eat as much as his doctor directs.

The human dietetic instinct may be compared to a thermo regulator, which, if working properly, keeps the temperature at a certain level, but if working improperly, may have the temperature too high or too low. There is such a thermo regulator in the body. *On the average* it keeps the temperature within very close limits; but in case of fever, or tuberculosis, or other abnormal conditions the regulator loses its adjustment, sometimes giving too high a temperature, sometimes too low. And observation would indicate that the dietetic instinct or nutrition regulator not infrequently loses its adjustment, so that in one case the person is never satisfied until he has eaten too much, and in another case he is satisfied before he has eaten enough.

Moreover, the maladjustment has reference, not only to the total food intake, but to the proportion, or "balance," of the various ingredients. This was well shown in an investigation of the dietetic habits of ninety-two families, conducted by the New York Association for Improving the Condition of the Poor. A report on this investigation, "The Adequacy and Economy of Some City Dietaries," by Prof. H. C. Sherman, of Columbia University, and L. H. Gillett, says: "Many of the studies gave evidence of deficiencies in food value in one or more important aspects. These deficiencies occurred frequently where the amount of money spent for food was adequate to supply sufficient nourishment had it been spent wisely. Or in some cases, the amount of food consumed was such as to give nearly 40 per cent more energy than was probably needed, while the amount of calcium (lime) or iron was barely more than enough to provide for the needs of the body."

Some one may object that the instincts of these people may have been more trustworthy than Professor Sherman's science; but why did some of the families choose foods so different from others,— varying greatly in their mineral salts,— if all were guided by instinct?

We might go through the medical and nutritional literature giving other instances to show that, whatever the human instinct *might be able to do under exceptional circumstances,* in practice it *does not do,* that is, lead men and women as a mass to the most favorable diet.

It may be well to call to mind one or two interesting cases where benefit came from a regulation of the diet by reason rather than instinct. The first is that of Luigi Cornaro, who, being warned by his physicians, placed himself on a very spare diet,— exceedingly spare, according to the modern conception,— and not only regained his health, but lived well beyond the century mark.

Another case is that of Mr. Horace Fletcher, who by his system of mastication was able to reduce his food intake to an amount that surprised the nutrition experts, and on that very low diet regained his health, and has been able

Mr. Fletcher, in "Fletcherism, What It Is" (Stokes, New York; 1917), says that at forty years his hair was white, his weight 217 pounds; that every six months or so he had a bad attack of "influenza," was harrowed by indigestion, and afflicted by "that tired feeling," in fact, was an old man at forty, and on rapid road to decline. Was turned down by the examiners of an insurance company as a "poor risk."

He gave up his business, and set about the business of getting well. Finding no agreement among the "authorities," he went direct to nature as a teacher, and as a result of his reasoning worked out a system which included the following: "Wait for a true, earned appetite." "Select from the food available that which appeals most to appetite, and in the order called for by appetite." "Get all the good taste there is in the food out of it in the mouth, and swallow only when it practically 'swallows itself.'"

In five months he found he had worked out his own physical salvation, and after long persistence and much discouragement, he compelled the scientific world to take notice. His daily intake, as shown by Chittenden, was 44.9 gms. protein, 38 gms. fat, and 253 gms. carbohydrate, with a total calory value of 1,606, the supposed minimum for a man lying still in bed; and yet on this minimum he was able to perform feats of endurance that astounded the college athletes. It is true that after he devised his rules, he let his instinct guide, but how about the instinct when not modified by these rules? How about the amount he naturally ate before he adopted the plan of "tasting" his food?

to perform feats of endurance that were an astonishment to college athletes and trainers.

Another fact is significant. Life insurance statistics based on a study of millions of lives, have shown that *men of thirty-five who weigh ten per cent under the average weight have a better chance for long life than those of average weight*, and much better than those of more than average weight. So, as the weight depends very largely on the quantity, or rather the "calories," of the food eaten, it stands to reason that the average person eats too much for his own good. The "nutrition regulator" in these cases is a little out of adjustment.

It would seem quite evident, then, that although the dietetic instinct is sufficiently accurate to preserve the species, it lacks much of being a trustworthy arbiter of just how much and what kinds of food should be eaten in order to develop the highest measure of health and efficiency.

I think Professor Osborne himself would assent to this proposition. But some, like the writer cited in the first part of this article, by overworking the idea of a human dietetic instinct, are liable to lead many astray.

Speaking of instincts, what of the instinct that has led all races of men to indulge in various stimulants and narcotics, such as alcohol, hashish, tobacco, opium, cocaine, besides others not known in this country?

One statement by Professor Osborne deserves attention. He says: "It has generally been held that overeating, except within narrow bounds, is impossible, for the subject will either grow fat, which of course has its limits, or will feel bad and cease to eat in excess until a normal condition is established, or will dispose of the surplus food by exercise." What has been said earlier in this article about life insurance statistics applies here. Some do habitually eat so as to lay on fat, and in so doing they, as the life insurance experience shows, thereby lessen their life expectancy. That would appear to be rather an unreliable sort of instinct that leads to such eating.

This overconsumption of food, instead of being a "factor of safety," as Meltzer puts it, would seem rather to be a factor of danger. Osborne reasons from "numerous examples set forth by Meltzer," that "the ills following overeating and undereating are, in some way, also provided against." It is difficult to see how they are provided against, when we know that increased avoirdupois shortens the life expectancy.

It is possible that young humans, placed where they were not subject to the example and the advice of their elders, and having free access to sources of all the essential food principles and accessories, might, like young pigs and young rats, choose just the food that was best for them. Might! But no children are so raised. They have set before them a comparatively limited menu, and are no doubt influenced both by the example and the instruction of their elders. The dietetic habits thus formed must necessarily do much to invalidate any latent dietetic instinct. So that, perhaps with the great majority, while instinct may be sufficient to preserve life and a measure of health, it lacks much of guiding to the quantity and quality and variety that will give the greatest health and efficiency. Doubtless "instinct" would serve us much better if it were allowed to have its way, unhindered by prejudice, false teachings, false eating habits, and the snares of the modern cook in the shape of highly seasoned dishes and course dinners. But under existing conditions it is not safe to reason that because the people "on the average" eat sufficient food to supply the wants of the body, with a good "margin of safety," the so-called "margin of safety" is necessary or constitutes the optimum.

Professor Chittenden, as a result of his experiments on reduced dietaries, was led to suspect, and often expressed it, that the food eaten in excess of the needs of the body, is physiologically a waste,— an extra burden; and we may well believe that when we know what the minimum safe requirement is (that is, the diet containing a safe minimum of each of the essentials), then the nearer we approach that minimum without overstepping it, the nearer we come to physiological efficiency.

If some device like Mr. Fletcher's enables one to utilize "instinct" to better advantage, then it were well to adopt it. Meantime there is reason for suspecting that *on the average*, people eat too much for the greatest efficiency and longevity.

MOUTH HYGIENE

Health and Mouth Hygiene

W. C. Dalbey, D. D. S.

MUCH is being said of late about conservation. An important phase of conservation is that of the teeth. Undoubtedly bad teeth are an economic waste. This even the most casual observer must admit.

To illustrate: If the grate bars of your stove are too far apart, or if some are broken and missing, the unburned fuel drops through and you have a fuel waste. More fuel is being used than is necessary. This same proposition holds good and with equal force in the human body. There should be received into the stomach food, properly prepared, and easy of digestion, and in sufficient quantity to maintain life and health and energy without waste. If some teeth are missing or have cavities in them that are sensitive when food is pressed upon them, or if the mouth is sore from diseased gums, and the food is swallowed before it is thoroughly masticated, much of this food (fuel) is wasted. The wasted food, however, is of small consequence compared to other things that result.

The stomach has no machinery for breaking up half-masticated food; hence fermentation follows, instead of digestion. And finally, when much of this mass is absorbed into the blood stream, this stream of life becomes verily a stream of death.

No one would think of feeding a baby impure milk, spoiled eggs, or moldy bread,— at least, one would not expect the child to grow strong upon such a diet,— and yet it would be just as unreasonable to put unmasticated food into the stomach and expect it to furnish the body with a strong, health-giving flow of blood. If one is fully determined to contribute so heavily to the high cost of living, he would better take the prepared food to the sewer and throw it in. The stomach and the whole body will at least escape the evil consequences of poorly masticated food.

Let us go back just a little. If your grate bars are too wide or broken, you remedy this, because you have been wasting fuel. You put in new grates or place the bars closer together. This is common sense. If you are wasting fuel fed to the human body through defective grate bars (the teeth), the remedy is equally apparent,— supply the missing teeth and repair the ones you have, or get a new set that will work.

ADVANTAGES OF CLEAN TEETH

The advantages of having clean teeth are at least two, economic and esthetic. The economic value is this: The mouth, warm and moist, is a first-class incubator. Food particles lodging about the teeth are subject to the action of the heat and saliva of the mouth. This starts the process of fermentation. Lactic acid is formed, and lies in close contact with the teeth, gradually softening the tooth surfaces. This causes a roughening, and thus produces a surface more favorable for the lodgment of food materials. The process of acid formation is now greatly enhanced, a decided breaking-down of the tooth structure follows, and a cavity is the result. So the advantages of keeping the teeth free from these food deposits become self-evident. A clean tooth cannot decay; hence less dental bills.

TARTAR DEPOSITS

Next to food deposits allowed to remain around the teeth, tartar deposits are most injurious. Such deposits, of course, like the food deposits, are due to carelessness in cleaning the teeth. These deposits, consisting largely of lime, by attaching to the tooth at the edge of the gum, act as foreign bodies, and become sources of constant irritation. If allowed to remain and increase in area, they will cause the gum margin to become inflamed and sore. The teeth also become sore and inflamed and finally

Photo, American Red Cross

Dental Dispensary at an American Military Hospital

loosen, and if not attended to speedily, are soon past repair. Tartar is the chief favoring cause of one of the worst of dental diseases — pyorrhea. Pyorrhea is to the teeth and gums what cancer is to the general system. It is curable only in its incipient stage.

ESTHETIC VALUE OF TEETH

As I write, there lies upon my desk a set of recently extracted teeth. These teeth are most repulsive, even to a dentist. Great, heavy deposits of greenish-gray tartar reach from receded necks to the very cutting edges of the teeth. The lingual or palatal surfaces are black as jet from tobacco smoke. Their odor is indescribable. Altogether they are exceedingly offensive. However, they are not badly decayed. A characteristic of teeth affected by pyorrhea is that they are never badly broken down. These teeth are strong and long rooted, and would be in the mouth today if it were not for one thing — dirt.

One look at a set of uncared-for teeth, with their tartar stains and their cavities, their unhealthy gums and their fetid odor; then one look at a row of clean, pretty teeth, with their healthy gums and untainted odor — these pearls in ruby settings,— just one look at each will demonstrate the value of esthetic principles in the care and preservation of teeth. It has been said that " dirty teeth will slander the whitest character." This is not a very nice way of putting it, but comes somewhat near the truth. Dr. Oliver Wendell Holmes stated the case well when he said: ' The dental profession has established and prolonged the reign of beauty. It has added to the charm of social intercourse. It has lent perfection to the strains of eloquence, and has taken from old age its most unwelcome feature."

NEWS NOTES

Infantile Paralysis

Infantile paralysis broke out in various localities during the summer of 1918, but was not nearly so general as during the previous season.

To Combat Influenza

Congress has appropriated $1,000,000 to be expended by the United States Public Health Service in connection with the medical services of the army and navy, in combating influenza and other communicable diseases.

Tuberculosis Dispensaries Closed

By order of the acting State Commissioner of Health of Pennsylvania, all the 120 tuberculosis dispensaries operating in that State were closed about the first of October, in order that the nurses might be used in the fight against influenza.

Meat Poisoning

After eating at a municipal canteen (France), 220 children developed severe poisoning, which was traced to paratyphoid bacilli in the meat. As the meat had been thoroughly cooked, there was no paratyphoid infection — only a severe intoxication. Evidently the cooking did not destroy the poisons in the meat, although it killed the germs. Three of the children died.

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—Emerson.

Denver Glacier

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AS WE SEE IT

Conducted by G. H. Heald, M. D.

THE WORLD FAMINE AND OUR OPPORTUNITY

MORE history is made in twenty-four hours in these stirring times than was made in so many years in ordinary times. The present political convulsion is like the eruption of a volcano where before there had been only mutterings, rumblings, and steam vents.

In order to help bring about a new state of affairs, in order to "make the world safe for democracy," thousands have cheerfully given their lives, or their limbs, or their eyesight. Myriads of graves and millions of broken men testify to the supreme sacrifice made to preserve civilization.

And the work is not completed. Now that the war has come to an abrupt end, the work of restoring civilization has only begun. There are hordes of people set free from autocracy, who, like the Russians, are in danger of flying to the opposite and worse extremity — anarchy. And the condition which is most likely to precipitate this most lamentable eventuality is *hunger*.

Our part — we who have not made the supreme sacrifice — in prevention of worse scenes, even, than those of the war, is to supply these poor, hungry, desperate, crazed masses of war victims with food and shelter. If we needed to conserve food in order to supply the Allies, much more shall we need to conserve it in order to feed all the hungry mouths which, owing to the collapse of the Central Powers, we shall now be able to reach.

Whatever those pacifically inclined may have thought of the appeal to save food to win the war, no person with a spark of humanity can resist the appeal to save to the uttermost for the sake of the open mouths and outstretched hands of the famished of many lands, which are turned toward us.

Emphatically this is a time for closer study of the possibilities of conservation, for the avoidance of all waste, for the use of all left-overs, for the limitation of our food intake to the necessities of the body — no eating for the mere pleasure of it — in order that every possible pound of food may be sent across the waters to feed the starving.

Whatever sacrifices we may have made, we have not died for our country. Let us now live for our race, for humanity, for civilization. Let us especially remember the Saviour's injunction, "Inasmuch as ye have done it unto one of the least of these my brethren, ye have done it unto me."

The Food Administration has distributed new food cards, giving instructions for food conservation for the coming year. It is to be hoped that every reader will co-operate heartily in the food-saving campaign, remembering that a few ounces saved daily in each family will make an aggregate of millions of tons of food, and will mean the saving of hundreds of thousands of valuable lives.

DO WE NEED
SO MUCH FOOD?

PHYSIOLOGISTS, particularly German physiologists, have for years contended for a high standard of feeding, both as regards the protein and the total calories. There have been some notable exceptions, such as Chittenden, of Yale, whose eyes seemed to have been first opened by Horace Fletcher's remarkable feats of endurance on a low diet; and Hindhede, of Denmark, whose observation of the rugged West Jutland farmers and their dietary habits convinced him that the theories of high-food requirements, especially high-protein requirements, were all wrong. The German physiologists, and with them many of the physiologists in other countries, continued to look upon a liberal ration as essential to health and efficiency. According to this high-protein theory, the Germans were during the war being starved, but they were not starving quite so rapidly as their enemies might wish, and some nutrition experts asserted that it would be impossible to starve Germany, even if the blockade could be rendered complete. They were on a lessened ration,— a less adequate ration; they were on an altogether unsatisfactory ration, at least those who were not wealthy, but not many were starving, and the reason would appear to be, partly, because during pre-war times they were eating more than they needed. They liked it. They desired a rotund figure and a protruding abdomen. The war took this off, and they were lighter in weight, going around with loose, baggy, flappy garments,— anything but resigned to the situation,— but they were not actually starving. To quote a paragraph from "The Food Problem," by Kellogg and Taylor, of the United States Food Administration:

> "All in all, the nutrition of the individual classes in Germany during the last year and a half has been a revelation to the scientific world, even without considering the question as to the ultimate results of such a reduction in the diet. The industrial classes of Germany have demonstrated that millions of hard-working men and women can subsist and work in apparent good health, though reduced in weight, upon two thirds of the diet previously regarded as a minimum. Curiously enough, in the controversies that have been waged for years over the minimum in nutrition, the German scientists have usually stood out for high values, and it has thus been their lot to observe in their own country the contradiction of their theories through the successful demonstration of the adequacy of the low intakes that were long contended for by physiologists outside of Germany and especially in the United States."

If the entire population of Germany could be put into a huge scale pan, they would not tip nearly so much as they would have previous to the war. Physically they have shrunk. Their clothes bag. They look like shadows of their former selves, but physiologically they are not so inefficient as the difference in weight would indicate; and if Germany had been able to distribute her foods equitably, so that the poor as well as the wealthy could have had a fair share, there would have been very marked no diminution in efficiency.

Germany, like many other countries, when she was in easy circumstances, was eating more than she needed, and was trying to argue through her scientists that she needed all the food she was consuming!

Undoubtedly during the last few weeks of the war her food supplies were rapidly approaching the danger point, and that, perhaps was one cause of the great collapse. Her stocks of food had been depleted even more than was suspected in this country.

HOW ABOUT THAT EXCESS OF PROTEIN?

IT has been shown conclusively that on the average more protein is consumed than the body needs. We know that, provided the proteins are "adequate," or balanced, that is, capable of being built up into such proteins as the body needs, one gram protein per kilogram of body weight is amply sufficient to supply the needs of the body. The rapidly growing baby receives no more than this in its milk — the food perfectly adapted for its nutrition and growth. But adult man, under the theory that the proteins are the essential foods, has so arranged the dietary, when the purse will stand it, that the meal is largely protein. This results, of course, from the custom of making meats such a large portion of the menu.

Kellogg and Taylor, in "The Food Problem," have given in plain language at least two reasons why an excess protein consumption is a disadvantage. To quote:

> "If more protein is ingested [eaten] than is required to maintain growth, wear and tear, and upkeep, it is destroyed in the body. The body does not store it in the sense that the body stores fat. No matter how great the excess of protein beyond the needs of the body, the needless protein is destroyed, and end-products appear in the urine. Now, since protein is an expensive form of food to produce in nature, and, therefore, expensive in the market, we ought to reduce the ingestion of protein to somewhere near the point of need. Protein consumed in excess of the tissue needs becomes a mere fuel, but a very expensive form of fuel, and one that possesses in addition a residue to be eliminated in the urine. The difference between sugar and protein as fuel may be compared to the difference between crude oil and coal. Sugar burns completely and leaves no ash; protein burns incompletely and leaves an ash, and this ash must be eliminated, imposing upon the kidneys a useless labor, comparable to removing ashes from a grate. Certainly no engineer would use a coal with ashes if he could for the same price or a smaller price use an ashless fuel; and whenever protein is consumed in excess of the tissue needs, it amounts to selecting deliberately a fuel with a large ash instead of a fuel with no ash."

This thought is certainly worth some consideration by those who think their menu must be built up largely of roasts and steaks and other meat dishes. These foods are expensive both from a money viewpoint, and from a health viewpoint. It is the liver and kidneys that have to do the extra work of disposing of the excess portion, and who knows to what extent these excesses are responsible for the kidney and liver diseases that take off the well-to-do shortly after the prime of life? It is the "good eaters"— the apparently robust, successful men of affairs, who are liable to this early death, while the spare eaters may outlive them for decades. One thing the life insurance statistics have taught us, namely, that the man a little "underweight"— that is, under the average weight — has a better chance for long life than one who is a little "overweight;" and the greater the overweight the greater the difference in favor of the one who is just short of the average.

Because we have had the money to pay for it, we as a people have allowed ourselves to yield to the pleasures of the table, both as to the quality of protein and as to the total intake, to that extent that it shows up in the insurance statistics. We should let the lessons of the present food crisis sink so deeply into our minds that we as individuals will eat for efficiency and long life, rather than for mere pleasure.

WILL THE BICYCLE HAVE ANOTHER INNING?

Munsey's Magazine for August asks: "Will the bicycle return to favor among persons above the golden age of seventeen?" The editor continues, "It has been out a long time," and then proceeds to explain why the "bike" went out. Possibly our great-city editor does not realize to what an extent the "wheel" has already come back in nearly all sections but the crowded metropolitan areas. Surrounded as he is by the jam and whir of subway, surface, and L cars, and the congestion of motor cars and trucks, he probably does not often see a bicycle, which might look as much out of place in such surroundings as a kitten in a volcano crater.

But were he to visit some of the smaller cities and towns, he would find the bicycle very much in evidence. Were he to come, for instance, to the national capital, he would see its broad, hospitable streets bristling with bikes — the old-fashioned sort, that save gas for the Government while they develop calves and thighs and wind for the riders; for in Washington bicycles are more in evidence than any other form of conveyance except street cars and automobiles.

The bicycle has certainly been coming back to its own for some time. And why not? Its main objection among a certain class is the fact that it is sold at a price that places it within the reach of the plain citizen. For this reason it has lost caste by those who can earn, borrow, beg, or steal enough to purchase a more expensive conveyance, or who can borrow a car with or without the consent of the owner. Another objection is that it does not satisfy the craving for speed. Still another is — for some — that it takes some work to run a bike. But against these seeming objections, the bicycle has advantages so obvious that they outweigh them all.

1. In these days of increasing cost of living, multiplying war taxes, and the necessity for contributing to Governmental and other activities, no one should feel unclassed for making such a saving as is involved in a bicycle purchase — a saving in original cost, in tires, in repairs, in gasoline. The upkeep of a good bicycle is practically *nil.*

2. The writer, who has run an automobile for some time, can testify that he takes more real pleasure from a bicycle trip — say in the park — than from a similar automobile trip, for the reason that it is more leisurely, and brings him into closer contact with nature.

3. For the suburbanite, it may effect a substantial saving in car fares — an important item in this time, when all the street railways have boosted or are asking for the privilege of boosting the price of fares. On a five-cent fare the suburbanite doing business in the city saves on car rides, by wheeling to work, at least $30 a year. If we allow $15 a year for the depreciation of the bicycle, the gain is still $15 a year, which would pay 6 per cent on a capitalization of $250, or six times the price of a very good bicycle.

4. The bicycle will also avoid delays, tie-ups, and the mortification of seeing several full cars pass without stopping.

5. And it is much healthier and pleasanter to ride on a wheel than to stand in a stuffy car.

6. It furnishes an agreeable form of exercise to many who otherwise might be tempted to neglect it.

7. In this time of gasoline scarcity, the use of muscular energy in place of gasoline is a patriotic act. Cycling is thus a combination of patriotism and pleasure.

These are a few reasons why the bicycle is coming back, and is bound to come back.

THE VICIOUS CIRCLE PREVENTS RECOVERY

THE tendency of nature is toward health. This is exemplified everywhere, among plants and animals and mankind. Wounds and injuries, if not too severe, tend to heal spontaneously. Every light attack of illness is self-limited. Nature is the physician. In fact, the doctor often gets credit for a cure with which his remedies had nothing to do, except, possibly, as his presence may have induced a condition of hopefulness in the patient.

But in chronic conditions we have a series of interacting factors which combine together to thwart the tendency to health. Doctors call such a series a "vicious circle." For example, indigestion causes the production of toxic products, which enter the blood current. These circulating through the brain cause a change of the mental atmosphere, so that everything is tinged with blue and conditions appear hopeless. This condition of the mind again reacts on the stomach to increase the digestive disturbance, and so on around the circle. Either of these conditions by itself would tend to disappear; but linked together, and acting one upon the other, they are perpetuated, and tend to become worse. One who is a victim of such a combination must have some help from the outside, else he is doomed to invalidism and perhaps an early death.

The Bulletin of the Kansas State Board of Health says:

> "Anger is a weakness which many people mistake for strength.
> "Anger creates a poison within the body which upsets the digestive apparatus.
> "This explains why the grouch is a dyspeptic."

This may explain why the grouch is a dyspeptic, but what explains why he is a grouch? Do you know that a man cannot become a confirmed dyspeptic without becoming a grouch? Dyspepsia makes for grouchiness. Grouchiness makes for more dyspepsia. There you have your vicious circle. Where did it begin? With the grouch, or with the dyspepsia?

Whatever the answer, the two conditions must be cured together, if at all. It's up to the dyspeptic to get rid of his grouch, and up to the grouch to get rid of his dyspepsia.

Any attempted cure of such a condition which essays to relieve dyspepsia by means of diet, lavage, fomentations, and the like, and does not also react upon the mind, is doomed to a short-lived success. The fact is, the right kind of doctor and nurse, even when not making an effort to do so, are by their hopefulness, their kindliness, their spirit of love, having a molding influence upon the mind of the patient, and mind and body are being treated together.

Any attempted cure through the mind which does not likewise take cognizance of the physical damage that has been done to the digestive system, is also

doomed, sooner or later, to fail. Physical methods may succeed, because in the hands of a physician who loves his work, the physical is bound to be accompanied by the right mental influence. But mental methods which disdain the physical, while they may give relief for the time, are likely to have little or no permanent influence for good.

In attempting to break up one of these vicious circles, we should attack it from all points.

HOW THE "PROFESSION" APPEARS TO AN ARCTIC EXPLORER

In the *Medical Review of Reviews* for May is a letter from Stefansson, the arctic explorer, in which he gives in unqualified words, "My Opinion of the Medical Profession," from which I take the liberty to quote. He says:

> "To generalize: You, as a class, are in the habit of asserting in strident tones things which you do not know. This, as pointed out above, is not a fault of the medical profession, but of all of us."

Medical men are perhaps not more given to this fault than are other men; but occupying the important position they do, in which their word or activities may mean life or death to multitudes of the human race, they should be less given to this fault than other men.

In harmony with this statement by Stefansson is one in the same issue by Dr. Carolus M. Cobb, on "The Treatment of Progressive Catarrhal Deafness," in which he has the following to say about fads. When we remember that, used in this sense, a fad is an enthusiasm for some *supposed* medical improvement, or short cut, not founded on actual knowledge, we can see how this statement of Dr. Cobb bears out Stefansson's statement:

> "Much progress has been made by reason of fads, but, on the other hand, much harm has been done, and if it were not for the beautifully short memory of patients more harm still would have been done. The writer has at times felt that he would like to write an article on the fads he has known in the last thirty years. The fault of such an article would be that while it might be interesting it would not do any good. The patients and the physicians forget and are ready for another try when some one presents a new fad to them with the positive assurance that he has seen most wonderful results in his management of such cases.
>
> "The physician may or may not be deceived. It is only fair to believe that in the majority of instances he has deceived himself. Further observation generally shows him that he has been mistaken. It may, perhaps, be necessary to have had such experiences to enable one to see these cases in their true perspective."

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 three-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.

Constipation

"Would you give tablets to relieve constipation?"

In the treatment of constipation, it is occasionally necessary to employ mild laxatives, as cascara sagrada.

Sluggish Liver

"Give treatment for deranged and sluggish liver, with bad breath, fermentation, and gas, following an abdominal operation."

See answers on flatulence, dilated stomach, etc., in this issue. Use cool saline enema, two quarts at 85°, three or four times a week.

Recanning Olives

"Can olives be bought in bulk and recanned so they will not spoil?"

Olives can be recanned, if each can is filled with sufficient liquor to completely fill it and so seal it; or the old liquor can be emptied out and the can filled with fresh brine.

Salt in Enema

"Is a salt enema beneficial?"

A salt enema, in the proportion of one teaspoonful to a quart of water, makes the water less irritating. Stronger solutions may sometimes be used, as a teaspoonful to a pint. More than this is apt to irritate, but is sometimes used in the treatment of mucous colitis.

Spasms

"Would you give medicines as a preventive of spasms?"

I should endeavor to relieve the spasms by rational treatments, as foot baths, mustard baths, etc., but I should certainly call a physician at once before beginning treatment, and on his arrival, follow out his orders carefully. An emetic or an enema might be given before his arrival.

Cold Sponge Bath

"Do you think well of the cold sponge bath?"

A cold bath is a necessity, and in one of its modifications can be used with benefit by every person. The room should be warm. The temperature of the bath should be graduated to suit the condition of the individual, and oftentimes much more benefit will be received if a warm foot bath is taken at the same time. The body should be sponged, part at a time, and each part should be thoroughly dried and rubbed before another part is bathed.

Man's Natural Diet

"What is the natural diet of man?"

In Genesis 1: 29 we are told that our food should be "every herb bearing seed, . . . and every tree, in the which is the fruit of a tree yielding seed." This bill of fare includes fruits, grains, nuts, and herbs. Permission to eat flesh was not given until after the flood. This permission was qualified by a requirement to eat no blood or fat. Flesh so treated is extremely unpalatable, and this signifies that flesh food was to be used only in an emergency, when other foods could not be obtained.

Echinacea

"Is echinacea a stimulant or a tonic? Is it detrimental to the system?"

Echinacea is listed by those who use these drugs as among the so-called "Specific Medicines," and is said to be "an alterative of great value in strumous diathesis, syphilitic lesions, old sores, and wounds." It is also said to be "a powerful antiseptic, locally and internally, in diphtheria, typhoid conditions, cholera infantum, and blood-poisoning." I am not familiar with this drug in my practice, as I treat the above diseases with hydrotherapeutic and hygienic care, and if necessary, with antitoxins, vaccines, and occasionally with other medicines. Echinacea is not a commonly used drug.

Dilated Stomach

"Please advise diet that will be helpful for dilated stomach."

Flesh foods should be barred from this diet, as the stomach retains the food too long, and flesh is especially prone to decomposition. The dilated stomach is usually deficient in acid and this predisposes to putrefaction. Food should be taken in the proper amounts and combinations. It is better to take small amounts every six hours than to eat larger meals less often, and but few articles at the meal, not more than four separate articles of food being taken. Food containing coarse residue, as parsnips and

cabbage, should not be used, and the coarse residue of celery, lettuce, spinach, etc., should be rejected. Carrots, peas, and beans should be passed through a colander, and all food should be masticated to a fine, creamy pulp before being swallowed. Acid fruits very often irritate a sensitive stomach, but subacid fruits, as pears, prunes, raisins, and sweet apples, may be used, if they are thoroughly cooked, and perhaps passed through a colander. Constipation should be cured.

Proper Breathing

"Please give directions for breathing properly."

Proper breathing should include both the diaphragm and the intercostal muscles. Lack of use of either of these sets of muscles involves the sluggishness of the underlying air cells, with stagnation of their contents and disease of these tissues. Healthy lungs cannot be secured without the use of all the muscles of respiration. Full, deep breathing aids in the digestion of the food and in the circulation of the blood, besides supplying the proper amount of oxygen to the tissues and carrying off the waste matter.

Compressed Yeast

"What is the composition of a compressed yeast cake? Is it injurious to take as a blood purifier?"

Gautier, in "Diet and Dietetics," page 2, gives the composition of yeast as follows: Nitrogenous matter, 30 per cent; fat, 2.8 per cent; cellulose, 5.5 per cent; starchy matter and glycogen, 44 per cent; mineral matter, 5.5 per cent; organic acids, 1 per cent; leucin, xanthin, etc., 3 per cent.

These materials are in living cells which, when supplied with food in the form of wheat flour, potatoes, etc., multiply, and also produce gas and water. When taken into the alimentary tract, a large part of the yeast passes into the intestines in a living state. Its presence in the intestine is detrimental to the growth of putrefactive bacteria, and produces more favorable results in this respect, when combined with lactic-acid bacillus. A report in the *Journal A. M. A.*, Volume 69, No. 15, page 1243, gives many favorable results with the use of yeast in the treatment of boils, acne, constipation, gastro-intestinal catarrh, and acute bronchitis. The yeast was given in doses of one-half to one cake of compressed yeast, dissolved in water before or after meals.

Mucous Colitis

"Give treatment for irritation of the mucous membrane of stomach and bowels, with passage of considerable quantities of mucous. I also have much gas and pain accompanying this condition. Am troubled very much with headache, dizziness, loss of appetite, and at times am very irritable. At times I fear I shall lose my mind. This condition is much worse at my menstrual period."

You are suffering from a condition known as mucous colitis. See following question regarding flatulence of bowels. In addition to the treatment there prescribed, use a dessertspoonful or tablespoonful of finely pulverized agar-agar with each meal. Acid fruits will probably disturb you, but you should be able to use subacid fruits, as pears, prunes, raisins, and sweet apples, with benefit, particularly if they are well cooked, and perhaps passed through a colander. You should have fomentations to the abdomen two or three times a day, and wear a moist abdominal girdle all the time, renewing it after each set of fomentations. Take a warm full bath, temperature 96° to 98°, at night. Stay in the water for thirty minutes to one hour, and go to bed directly after the bath. Take a saline enema containing a teaspoonful of salt to a quart of water at a temperature of 90° once a day. Use two quarts of water, and after this enema has passed off, take an enema of a half pint of sweet oil, olive oil, or cottonseed oil. This should be taken in knee-chest position and retained as long as possible. You need rest and good feeding, and building up of your nervous system to the highest possible condition. This method of treatment is worthy of several months' trial. This disease is very stubborn, and is apt to try your patience. The more chronic cases often demand surgical intervention.

Treatment for Flatulence

"Give treatment for gas on the stomach and bowels, with accompanying lack of energy and dizziness."

A person in this condition should have an X-ray examination of the gastro-intestinal tract, including a barium enema and a careful examination of the colon. In many cases of flatulence, we find an incompetent ileocecal valve, which allows a regurgitation of the colon contents into the small intestine. This increases the flatulence and toxic condition. A dry diet should be used, including dextrinized cereals, as zwieback, toasted rice, and wheat, either flaked or puffed. Grape-nuts, shredded wheat, and other dry cereals are excellent. The protein foods should be kept at a minimum, and there should be no flesh foods of any sort taken. Eggs should be used sparingly. Pastry and custards should not be taken unless they are very simple. The desserts should rather include fresh ripe, or carefully stewed fruit. It is important that very few articles of food be used at each meal. A large variety tends toward fermentation and gas formation. The bulky foods, as lettuce, celery, spinach, asparagus, cabbage, and carrots, should be tender or well cooked, and very coarse particles should be rejected. Constipation should be cured. It may be well to take an injection of water into the lower bowel, containing a teaspoonful of salt or soda to a quart of water at a temperature of about 95° or 98°. Special abdominal massage, with special exercises for the abdomen, as forward and backward bending, also side bending or twisting exercises, are beneficial. The abdominal muscles and intestines can be much benefited by taking abdominal exercises, consisting of leg raising or body raising while patient is lying on the back. We would not advise osteopathic treatments. It will be well for you to take some fomentations to the abdo-

men at night and wear a moist abdominal girdle all night following the fomentations.

Food for the Sick

"Do not the sick require flesh foods, meat broths, etc.? If not, what substitutes can be used?"

A sick person should be the last one to use flesh foods, meat broths, etc. Elimination is slow; the liver, kidneys, and bowels are working below par, and should not be burdened with the extra amount of waste matter contained in flesh foods. Meat broths are simply concentrated filth, and are chemically the same as the secretion from the kidneys. The flesh used for food contains much waste matter, which accumulates after the animal dies; and the death of the individual cell does not occur until it is poisoned by the accumulation of waste matter. It is thus asphyxiated, or poisoned, to death. Such food is not the best for a sick person. Much better foods may be obtained by the use of fruit juices, milk, buttermilk, peptonized milk, and cereal gruels, as gruels of barley, wheat, oatmeal, shredded wheat, rice, etc.

BOOK REVIEWS

Home and Community Hygiene

by Jean Broadhurst, Ph. D. 118 illustrations, 428 pages. Cloth, $2 net. J. B. Lippincott Company, Philadelphia and London.

There have been issued a number of treatises or textbooks on public hygiene, but none from just the viewpoint of the present volume, which has been prepared especially for the mature but not technical student. Though written as far as possible in simple language, with all technical words defined, it is thoroughly dependable, so far as it goes, as an exposition of the present knowledge of the subject.

Beginning with chapters on "Bacteria and Other Micro-organisms in Relation to Health" as a foundation, the author, an experienced teacher, takes up the consideration of food, water, milk, air, and ventilation, sewage disposal, disinfectants and quarantine, treatment and prevention of disease, the home, schools, other community units, infant welfare, middle age, tuberculosis, mental hygiene, military hygiene, rural and urban conditions, etc.

This partial list of the contents will give some idea of the wide scope of the work, which is well adapted for the use of home makers, community workers, and in fact, any who are not taking up the study of public hygiene as a profession.

Not the least important feature is a carefully prepared bibliography to guide the student in his further investigations of the subject.

Throw Physic to the Dogs

by George and Alice Hayden. 80 pages. $1 net. George H. Doran Company, New York.

Doubtless constipation and the use of purgatives are great evils — possibly as great as the authors picture them. Whether, as they claim, anything less than a movement after each meal constitutes constipation, is still open to question. But that there are countless thousands who owe their illness largely to inefficient bowel action seems to be evident.

The authors give a number of rules for securing good health through regulation of the bowel function. With the exception of the second,— to eat fruit regularly *between* meals,— which we are not prepared fully to indorse, they are excellent. One rule is, to "avoid all meats, above all, pork, goose, veal, liver, gravies, and salt meats." Why chicken should be especially excepted we do not know.

A chapter is devoted to laxative breakfast menus, with recipes — some excellent suggestions.

The table of cellulose values should prove valuable in enabling readers to choose a "bulky" diet. The cellulose value of raspberries seems a little high. And to give *dry* navy beans a cellulose value of 4.4, as against, say, cabbage 1.1, seems misleading; for when, in cooking, the beans are reduced with water to a consistency of boiled cabbage, the cellulose value must be correspondingly diminished.

On the whole, however, the little book ought to be of great benefit to many sufferers from constipation.

Your Heart and How to Take Care of It

by Robert H. Babcock, M. D., LL. D., illustrated. Cloth, $1.50 net. George H. Doran Company, New York.

Not generally is it appreciated to what an extent the condition of the heart and circulation determines the general health and the length of life. Most cases of death are in fact, whatever else they may be called, cases of heart failure. Whatever one dies of, it is usually the heart that gives out first. The other organs would, in most cases, continue their work for a while longer were it not for the failure of the heart to do its work. Something evidently has weakened the heart to the extent that it is the first organ to give up the struggle. A little difference in the condition of the heart may determine whether a collapse will be fatal, or be "bridged over" and the individual restored to health.

Many cases of supposed "dyspepsia" are secondary to some unsuspected heart trouble. In such cases, when heart symptoms do appear, it is often supposed that they are caused by the dyspepsia. Many a child, not receiving the right kind of care, has had his heart irreparably injured during an acute attack of rheumatism or tonsillitis or some other infectious disease. Such damage is a life handicap.

Dr. Babcock, in "Your Heart and How to Take Care of It," has given in plain language the essential facts about the heart, its care, its diseases, how to prevent heart trouble, how to recognize heart disease, and what to do in case of heart disease. Here are a few of his chapter titles:

"What Do We Understand by Heart Disease?"

"What Can be Done Toward Preventing Heart Disease Due to Infection?"

"Why There Is So Much Heart Disease at Middle Age."

"Symptoms About Which You Do Not Need to Worry."

"Symptoms to Which You Should Give Heed."

"How to Take Care of the Heart."

This book is a commendable effort to enlighten nonmedical people regarding one of the most important organs of the body.

NEWS NOTES

Breakers Ahead for Brewers

The Fuel Administration has notified the brewers that their fuel consumption must be reduced fifty per cent while their present stock of materials continues. When that is gone, they may not be permitted to use any fuel. Meantime they are forbidden to make further purchases of raw materials.

Chocolate and Cocoa Containers

Chocolate and cocoa manufacturers are arranging to effect a substantial saving in tin by packing their products in containers made of other material. The new containers, which will be used as soon as the present stocks are exhausted, will be square or oblong instead of round, to save packing space.

Lifting the Load

The American Red Cross has given the man at the front a fresh, new conception of his task. It has done this largely by removing the things which distress the body and the mind and destroy the soul,— the mud, the filth, the anxiety, the heartache, the loneliness, the feeling of hopelessness,— clods which weigh down more heavily than all the accoutrements of war.

Unwrapped Cantaloupes Keep Best

Wrapped cantaloupes deteriorate rapidly after they are removed from refrigerator cars. Unwrapped cantaloupes will keep better while in your hands, and will better satisfy your customers. When, on summer days, crates of cold cantaloupes are removed from refrigerator cars, moisture from the atmosphere condenses on the surfaces of the melons. This moisture soon evaporates from cantaloupes not wrapped, but from wrapped cantaloupes evaporation is hindered by the paper, and the moisture aids the development of decay and mold.

Food Value of Candy

An article in a recent *New York Medical Journal* states that candy, being composed principally of sugar, chocolate, and nuts, is very high in food value, easily digested, and rapidly assimilated, so is excellent for relieving fatigue. The soldier at the front, when doing strenuous work, satisfies the craving for "something sweet" with cake chocolate and the like. During exhausting labor, the sugar supply in the body is rapidly depleted, and there is need for a fresh supply in a readily assimilable form. Swiss guides for mountain climbers consider lump sugar and sweet chocolate indispensable in their work.

Greater Scourge than the War

Though the sacrifice of lives in the present war has been so enormous as to make all previous losses on the battlefield appear slight in comparison, it nevertheless appears to be a fact that this frightful war mortality does not greatly exceed, and indeed may be exceeded by, the deaths from tuberculosis under ordinary conditions, if equal areas and periods be considered. In the four years since the war began, the total number of deaths from tuberculosis among the civilian population and in the armies of all the countries engaged, has at least approximated the total number of soldiers killed in battle.

The Red Cross at Home

Among the million wives and mothers of soldiers and sailors, the Red Cross is giving encouragement to lonely hearts, bringing together estranged families, making homes more attractive, furnishing medical and nursing service, caring for helpless babes, conducting campaigns against disease, and forming contacts between the families and the churches.

America Must Send More Food

When the inter-Allied food council met last summer, the needs of the Allies were computed, and the resources from which they could be met were reckoned. The schedules show that America must this coming year send to the hungry of Europe half as much again of food supplies as last year. In place of eleven and three-fourths million tons, the shipments this year must be seventeen and a half million tons, and this from substantially the same yield as last year. This means that Americans must learn to conserve food as they have not yet learned.

Soy-Bean and Peanut Flours

Investigators some time ago determined the fact that the soy bean and the peanut contain complete proteins. More recent experiments, detailed in United States Department of Agriculture Bulletin 717, show that soy-bean and peanut flours cause no digestive disturbance when fed to persons of ordinary health, and that the protein of these flours is well utilized, 85 and 86 per cent, respectively, being the figures given in the Bulletin. In view of the fact that soy-bean flour and peanut flour are now by-products, fed to cattle, it would be well to make some move to introduce for human consumption preparations from these valuable foodstuffs.

Dehydration of Vegetables

The United States Department of Agriculture, at the instigation of the Food Administration, will inaugurate a campaign to increase the use of dehydrated fruits and vegetables, which, it is said, compare favorably with the fresh article. To show the necessity for such means of preservation, it is cited that about 8,000,000 pounds of Irish potatoes were "thrown on the dump" in New York City alone, last January, having been frosted and rotted in transit. The War Department has already recognized the value of the dehydrating process, and is using large quantities of dehydrated foods, chiefly potatoes, carrots, onions, and a small supply of soup mixtures.

No More Meatless and Wheatless Days

In the new Food Conservation program there will be no meatless or wheatless days, as there have been the past year. From now on it will not be a problem of how to meet sudden emergencies, but a long, steady pull directed to the whole food situation, and not so much to particular commodities. After a year's experience, the Food Administration is on a new footing here and abroad. The ways have been learned, the methods have been developed. It now remains for the people to enter heartily into the plan, not of going without necessary food, but of eliminating all waste, and of lessening our consumption of certain foods of which we have been eating too much.

Battling Influenza

To battle with the epidemic of influenza, the American Red Cross called out its Home Defense Society nurses and assigned them to camps, hospitals, and shipbuilding plants. Emergency orders have been sent to Red Cross divisions to secure the nurses needed to meet local problems. Thousands of masks were released from a reserve supply at headquarters, for distribution by division directors.

Sauce for the Gander

Why call upon the children and women to do all the conserving? Why should not the men do with less tobacco, less booze, or less vice? Why should not men do without these needless and harmful luxuries altogether? Such practical conservation would save enough to pay off more than one half of the annual war debt, and leave the race in a fine condition to meet the reconstruction period. — *Health Bulletin, North Carolina.*

Soldiers' Vegetable Gardens

The vegetable gardens for convalescent soldiers at the American Army hospitals have proved so successful that the American Red Cross in France has sent a representative to this country to secure ten expert market gardeners to direct such activities. The gardens supply quantities of fresh, green vegetables to the diet kitchens, and the farm work is agreed by the doctors to be one of the best restoratives in cases of shell shock.

Rejected on Account of Tuberculosis

The army draft examination has rejected 6 per cent of the men — one in every 17 — on account of tuberculosis. At this rate, hundreds of thousands of the men of the draft will be found to be tuberculous. In most of the cases examined, the person did not suspect his condition. The experts declare that if in these cases the disease had been recognized and given proper attention in time, it would not have developed to be a serious handicap.

Preying on the Unfortunate

According to the National Association for the Study and Prevention of Tuberculosis, at least $20,000,000 is invested in the business of manufacturing and exploiting fake consumption cures. The estimated annual income from this miserable business is $15,000,000, mostly paid by the families of poor consumptives who can get no good whatever, and only harm, from the nostrums, and who need the money for food and other comforts.

Study at Home

IF you cannot go to school, you can study at home, and make as good improvement as you could in school, in proportion to the time you can devote to study. The certificates of credit of the Fireside Correspondence School are recognized by all Seventh-day Adventist schools, and probably by other schools. Form the habit of home study early, and practice it persistently. The president of the General Conference says: "I believe your school is conferring inestimable benefit upon our people." Write today for information about subjects, prices, and how to earn your tuition. Address C. C. Lewis, Principal, Fireside Correspondence School, Takoma Park, D. C.

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St. Helena Sanitarium

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