

form divine. I must admit that the Philistines have the best of it to this extent that the majority of human bodies are not things of beauty. They are shameful things, which the owners of them do well to keep covered. It is probable that a more general diffusion of physical beauty among mankind must precede the general acceptance of the poets' and painters' ideal.

The chief ends then, of physical education, are Health, Happiness, Power, and Beauty.

DIET AND STIMULANTS.

BY

E. F. BENSON AND EUSTACE H. MILES.

DOGMATISM on any subject is dangerous; in matters of food it is fatal. One man's meat is literally another man's poison, and because one of the writers knows that personally he can digest without the slightest discomfort a heavy supper, sleep the sleep of the just, and rise cheerful and hungry for breakfast, he would be making a great mistake in recommending such a course for a dyspeptic person, with a view to the strengthening of his digestive processes. In fact, if a naturally dyspeptic person persevered in such a system, this unfortunate scribe would probably be summoned to attend—with shame and dishonor—a coroner's inquest. On the other hand, should the dyspeptic so far win him over as to make him give what he would call a "fair trial" to a simple diet, "the only diet," he would say, "on which it is possible to keep fairly well," he would, if it was persevered with, be probably asked in a public place what he knew about this suicide. But the moral of these gloomy reflections is clear enough: namely, that in questions of eating, and drinking, and smoking, what is to be ascertained is the diet which will keep A or B in good health for the proper performance of a citizen's duties. Whatever diet (or absence of diet) continues to give good results after a protracted trial is almost certainly good for the individual in question. Whether it would be good for another individual it is impossible to say, but if any one person, even though he lived exclusively on green cigars and Egyptian mummies, continued to be in his most excellent health on such a diet, it would be foolish to urge him, except on the score of expense in the way of import duties, to change it.

But the majority of people are not at their best, and know it. When they are in hard work which, as far as we can see in the present highly competitive state of the world, is becoming the normal condition for man, their bodily health, and in particular their bodily activity, sensibly declines. Then perhaps there comes a lull, and they

rush off into the country to be out of doors all day, and play games, or shoot, or hunt, and get sensibly better. They have more appetite for food, and as a natural consequence digest it better, since wholesome appetite is a fair enough signpost pointing to the pleasant place called "Eat." Then the lull ceases; they go back to work again, with a gradual decline of appetite. At these cross-roads, so to speak, for the most part they take the wrong turning, and continue to eat as much as before. Horrors ensue.

The fact is that most people when taking a great deal of exercise are able to digest, and, what is not less important, to assimilate, not only larger quantities of food than they can assimilate when in full sedentary work, but a different sort of food. As a rule they know of only one change of diet, alluded to contemptuously as "vegetarianism," and connected in their minds with huge platefuls of damp cabbage, of which the most valuable salts have been boiled out and thrown away by an ignorant cook. They are further "put off" by what appears to most people preposterous notions about the sin, no less, of eating animal food. In fact, bad cooking and tactless enthusiasm have hand in hand done their utmost to ruin the vegetarian cause. To eat damp cabbage can be, by no conceivable process, good for anybody, and to shun animal food because it implies death to an animal is a motive which does not appeal to the majority, who, without examining any possible truth it may contain, label it a fad. And there is nothing which in the minds of ordinary people, who most naturally and sensibly do not wish to spend the whole of their lives in discovering the diet which best suits them, is more strongly prejudicial to any examination of a new system than to suspect it of being faddy. They naturally desire a *régime* of which the common-sense appeals to them, and the common-sense of that which is ordinarily called vegetarianism is far to seek. Many people have found that the amount of meat which they usually eat is not very good for them: that three flesh meals a day are excessive in the way of animal food; on the other hand they must have something substituted for the meat, and they turn to vegetarianism, and perhaps try a meal at some vegetarian eating-house. One of the present writers tried it. For an hour or rather less he felt that he would never eat again as long as he lived, then, almost without transition, he felt that he wished to eat the whole world round. And he fled back to the fleshpots of Egypt.

But nowadays vegetarianism is studied by certain people in a spirit of scientific investigation, and its results, rationally arrived at, are likely to prove of the most permanent value. It is the greatest possible mistake to suppose that all vegetables and fruits are equally supporting; some are highly nutritious, others are hardly nutritious at all, and to load the stomach with immense masses of a food which has a low nutritious value, in order to get sufficient nutriment, will probably produce results on health worse even than those from which

the man who found that he was taking excessive quantities of animal food tried to escape.*

Briefly, then, the scientific view of food in general is as follows.

Food has to supply waste of tissue and make repairs.

Food has to supply heat (fuel for the continual combustion of the body) and a certain amount of fat.

Food—so it is usually asserted and largely believed—has to give the stomach a certain amount of fibrous matter to supply bulk which will enable the system, by natural means, to cleanse and flush itself internally, and throw off the waste for which it has no use, but which exists in greater or smaller quantities in all foods.

Incidentally, also, food should be of such taste and nature as easily to excite the saliva, which is almost indispensable to procure digestion.

Now the one great necessity without which we die is proteid, because proteid supplies (and nothing else in the world supplies) the waste which daily and hourly goes on in the body. It is present in conveniently large quantities in all meat foods, which is one of the main causes of their being eaten, but it is present also in large quantities in cheese, milk-proteid, grains, nuts, and pulses, though in certain other fruits and vegetables it is almost completely absent. It would be practically impossible, for instance, to eat enough cabbage to supply the necessary amount of pure proteid per diem, which must, and this is important, not only be swallowed but be digested. On the other hand, it is easily possible to get enough proteid per diem by a meat diet, but it is even easier to get enough from a diet of grains, nuts, pulses, and milk-proteid,† provided the right sorts are eaten.

The abridged table on page 389 giving values of certain common articles of diet both in proteids and also in fattening and heating products will make this clear.

As to drink and stimulants more regard if possible must be paid to what we have called "the personal equation" than even in matters of food. Excess of everything—for such is the implication of the word itself—must be bad for everybody, but there is no earthly foundation for supposing that what is excess for one person injures another in the very least. A shower of rain ruins a picture-hat in a few moments: the same shower does not practically injure a locomotive engine at all, and is absolutely good for sprouting corn. Alcohol, for instance, if indulged in at all by one man, will assuredly lead either to excess or to inordinate craving for it, while another man will drink wine at lunch and dinner for years without ever feeling the

*"Many men are attempting to carry the diet of youth on into middle life and age, or the diet that was quite correct for an active outdoor life into a life of sedentary office work in a town; or if they fall into neither of these errors they are generally completely ignorant with regard to the relative value and importance of foods, so that they either starve themselves on vegetables or herbs containing little or no albumen, or, on the other hand, overfeed themselves. . . ."—Dr. Alexander Haig.

† For the question of milk-proteid in general see "Text-book of Physiology" (Schäfer), Vol. I., page 135.

slightest desire to increase his usual quantity. What he drinks, again, would hopelessly disagree with, or perhaps intoxicate another man, while it seems as far as we can judge to suit him; he would perhaps even be definitely less well without it. It is on this point that preachers of total abstinence, just like vegetarians, are often their own worst foes. They seem to regard the process of fermentation (a natural one after all) as productive of something which is in itself immoral. Drunkenness, of course, is a vice; we all know that; but so, and certain teetotallers seem to forget this, is gluttony. They

TABLE OF FOOD VALUES.

Foods—uncooked, unless otherwise stated.	Proteid.	Fat.	Carbo-hydrates.	Salts.
Beef (with moderate amount of fat).....	20	1.5	..	1.3
Mutton (with moderate amount of fat)...	14.5	19.5	..	0.8
Pork.....	12	26.2	..	1.1
Fresh fish.....	10.5	2.5	..	1.
Milk.....	2.3	4.	4.5	0.7
Plasmon.....	69	8.5
Cheddar cheese.....	33.4	26.8	..	3.9
Eggs (white).....	12.6	0.25
Eggs (yolk).....	16.2	31.75
Hoivis bread.....	9.9	1.6	42.3	1.2
Wholemeal bread.....	6.3	1.2	44.8	1.2
White bread.....	6.5 to 3	1.0	51.2	1.0
Boiled rice.....	5.0	0.1	41.9	0.3
Macaroni.....	10.89	0.45	76.05	0.64
Dried peas.....	21.0	1.8	55.4	2.6
Lentils.....	23.0	2.0	58.4	2.7
Haricots.....	23.0	2.3	55.8	3.2
Potatoes.....	1.2	0.1	19.1	0.9
Turnips.....	0.9	0.15	5.0	0.8
Onions.....	1.6	0.2	6.3	0.6
Cabbage.....	1.8	0.4	5.8	1.3
Tomatoes.....	1.3	0.2	5.0	0.76
Cucumbers.....	0.81	0.1	2.1	0.4
Apples.....	0.4	..	12.5	0.4
Plums.....	1.0	..	14.8	0.5
Cherries.....	0.8	..	8.9	0.5
Strawberries.....	1.0	..	6.3	0.7
Bananas.....	1.5 to 3	..	22.9	0.9
Lemons.....	1.0	..	8.3	0.5
Dried dates.....	4.4	..	65.7	1.5
Dried figs.....	5.5	..	62.8	2.3
Chestnuts.....	10.1	10.0	..	2.7
Walnuts.....	15.6	62.6	7.4	2.9
Sweet almonds.....	24.0	54.0	10.0	3.0
Cocoa bean.....	6.3	50.44	4.20	2.75

each of them turn man into a brute beast, though what many teetotallers would look approvingly at as "a good hearty meal" appears to us to partake fully as much of the nature of debauchery as does the drinking of a bottle of champagne at dinner. The question of drinking, in fact, seems to us one that each man must settle for himself, by finding out experimentally whether he needs stimulant or not. Probably the healthier he is the less he needs it, and to spur a horse that is already going as well as the rider has any right to expect is both a cruelty and a false use of energy. It seems certain, also, that

most people who take stimulants at all take more than they really need, partly because of the pleasant effect of stimulant in the heightened vividity it gives (leaving anything like drunkenness out of the question), and because of the taste of alcoholic beverages, which nine out of ten people find most palatable. Here again preachers of total abstinence put forward an argument so silly that it is scarcely worth combating (were it not for the fact that it is so often repeated), when they say that what we have called "heightened vividity" is the thin end of intoxication. It is nothing of the kind. Food itself is a stimulant as well as a nutrient; a mutton chop or a welsh rarebit when one is hungry gives heightened vividity; so also does whisky and soda.

But, and here we tread more sensible ground, it must be remembered that alcohol is *not* a nourishing stimulant, and that its effect quickly wears off, leaving reaction, however slight, in everybody. Nor must we keep out of the question what the continued effects of alcohol are. Its bad results may not be apparent for a long time. In certain cases there are bad results; in certain other cases apparently there are none. Authorities on training are universally agreed that very little, if any, should be taken when the training has begun; and they are unquestionably right, because the object of training is to produce before a certain date or during a certain period a specimen of manhood at its highest possible physical level, strung up and maintained at concert pitch. To do this the whole structure must be sound, and stimulant then appears to be of the nature of a temporary prop, which has again and again to be set up afresh. Also, repeatedly applied stimulant followed by repeated reaction is not ideal.

The same remarks apply to the ordinary individual in a less degree; for though he should aim at ideal health, he does not want the sort of health which a boat-race crew want. In fact, in a necessarily sedentary life it would be exceedingly inconvenient to him; for to maintain it it seems necessary to have hard daily exercise, quantities of open air, and hours which are practically impossible for the ordinary man who has to do his daily work. An abstemious man who has been accustomed to alcohol may easily, if he drops its use altogether, find himself continuing to desire it, at an expense of nervous fretting which will cost him more than the possible gain in health may be worth. But when any man who takes alcohol finds himself desiring it more and more and in increased quantities; if even at one meal, let us say, he is unable to get it, and finds himself fretting for it, we have no hesitation in begging him at whatever cost to drop it altogether and at once. We do not say he is on the highroad to become a drunkard, but somewhere ahead of him there easily may be that highroad.

Here comes in the question of the general regulation of drinks, which, theoretically, we are afraid, is a most uncomfortable gospel. For the effect of drinking cold things during a meal, except in very

small quantities, is without doubt digestively criminal: since the result of pouring cold aspersions into the stomach while it is busy with digestion is to lower its temperature at the time when heat is needed, and also to weaken and water down the digestive juices.* There is no getting over this: long drinks on hot days at lunch are not to be recommended. But even here the baffled voluptuary may find a way out which is not so disagreeable. He may by all means have his long drink half an hour before lunch, or at a rather longer interval after. If he choose after, he will find, especially if he has eaten fruit at lunch, that he does not want it, and that though the satisfaction of a real throatful of cold liquid is denied him, he will have taken during lunch quite sufficient liquid to satisfy his thirst.

THE CARE OF THE TEETH IN RELATION TO HEALTH.

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NOTE.—Physical education, as the reader will have learned from the many Contributors to this Section, is not, as many have been accustomed to think, a mere training of the muscles. It covers the proper care of the whole person, and it is part of a proper Physical Education to know how to take care of one's teeth, for, as the following article shows, health, strength, and beauty depend to a very large extent upon this being done.—[C. W.]

THE teeth should be examined and thoroughly cleaned three or four times yearly. (In extreme cases even oftener.) No person is able to thoroughly cleanse his own teeth. If food is permitted to remain between or on the teeth the action of bacteria converts this débris into lactic acid and other products. This, together with the tartar (a hard bone-like substance) which is deposited about the necks of the teeth, by the action of the saliva, causes recession of the gums, and so lowers their vitality that the disease germs which are to be found in all mouths, whether healthy or otherwise, are enabled to bring about effects ranging from very slight to intensely serious conditions such as the loss of all the teeth and other evil results.

Furthermore, the lactic acid dissolves out the cement-like substance between the rods of enamel in the teeth, causing them to fall out, and allowing the various bacteria of disease or decay free access to the inner structure of the teeth. The individual then swallows increased quantities of the said bacteria. These have a directly bad action upon the general health. The white blood cells have as one of their functions the killing of disease-producing bacteria. Up to a certain

*On the excitation of the gastric juices by digestion only, see Schäfer, "Text-book of Physiology," Vol. I., page 349.