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A SOUND MIND IN A SOUND BODY

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SECOND-HAND FOODS

BY J. H. KELLOGG, M. D.

ANIMALS have two kinds of life,—the *somatic* life, which harmonizes and unifies the activities of the various parts of the organism, and the *molecular* or individual cell life. The body is an assemblage or community of entities, each cell and fiber of which has a specific, characteristic, individual work to perform.

Somatic life ceases when the breath leaves the body and the heart stops beating, but cell life continues for several days after the organism is apparently dead. A frog remains alive many hours after its head has been cut off, and it is a well-established fact that the small, hair-like projections, or cilia, which cover the lining membrane of the air passages, continues a rhythmic waving motion for several days after so-called death; this motion is plainly visible under the microscope.

Any one visiting the great abattoirs may see slaughtered animals being skinned while the flesh is still quivering and the muscles twitching, showing that cell life is still active.

The glands continue their work of secretion as long as cell life continues. The liver continues to make bile until it has used all of the blood in its tissue. If a piece of liver is taken from a freshly slaughtered animal and placed in a mass of blood, it will make bile from that blood, for the cells are still alive.

The muscle isolated from a frog's leg will respond by a contraction to stimulation by electricity until the poisons generated by its cell life accumulate in its tissue, when it ceases to act. If the muscle is now washed in salt water sufficiently to remove the poisons, it will work again almost as vigorously as ever. These facts plainly demonstrate that cell life continues after somatic death.

During life each cell is constantly bathed with pure, fresh blood, which carries to it life and nourishment, and goes back laden with poisonous gases and débris, which were generated by the liberation of its energy. Even after the heart ceases to beat, the arterial blood that is in the body is filtered through the tissues by the contraction of the arterial walls, so that the arteries are empty after the animal is dead. The blood that is left in the tissues is venous

blood, so that the flesh of even a healthy animal, which dies under the most favorable circumstances, is simply saturated with poisons.

The toxins, which, during life, were separated from the tissues by the blood and from the blood by the kidneys, and eliminated; the poisons, which, during life, the liver destroyed, and the lungs and skin threw off—all continue to be generated by the cells after somatic life has ceased, and are stored in the tissues, to the detriment of the consumer of second-hand foods.

The only part of the flesh of an animal that is food is the portions that have not yet been broken down. If a piece of flesh be taken and washed so as to get all of these poisons out of it, you would have left the only part that is really food, but the flavor of meat would not be there, for that flavor is due to the urea, uric acid, and other various poisons in it, intended to be carried out through the kidneys. The real food that is left is proteid food, which is as tasteless as india-rubber, because not soluble in the mouth by the salivary juices. It was formerly supposed that creatin and creatinin, the most abundant soluble substances in the muscles, were food, but the results of experiments made during the last year or two and published in the medical journals, have shown most conclusively that creatin and creatinin are not foods, that they are poisons instead, and that when taken into the body they are eliminated as such, and have no food value. They are the product of disintegration, and are not organized foods.

People imagine that beef juice and beef tea are especially nourishing; this is a mistake. A popular and much-advertised "Extract of Beef" claims to represent forty pounds of the best beef. Now what that really represents is the excrementitious part of forty pounds of beef, simply the effete matters, which are intended for the kidneys and the liver to excrete, and that is what has been extracted out of the forty pounds of meat, and the rest, which is the only real food, is thrown away. Dr. Austin Flint once made the statement that thousands of fever patients have starved to death on beef teas, and an eminent French surgeon says that "beef tea is a veritable solution of poisons."

Dr. Haig, an eminent English physician, pointed out the fact that persons addicted to migraine, or sick-headache, should not eat meat, because it contains uric acid, etc., which causes these disagreeable symptoms.

When the organs have to any degree lost their ability to purify the body, meat should especially be avoided, because of the poisons contained in it. The consumption of flesh invites old age and favors every process by which it is encouraged, and brings on the inconveniences and diseases of old age before it is necessary.

This is the reason that a meat-fed dog gets the rheumatism while young, whereas the dog that is fed entirely on grains and vegetables and fruits does not get rheumatism. What is true of a dog, which is a carnivorous animal, and has a much stronger stomach and a much stronger and more active liver and much more vigorous eliminative organs than man, must be equally true of human beings. It is coming to be recognized in England that it is not the wine that gives their lords the gout, but the "rare roast beef of Old England."

Physiological chemistry and bacteriology have, in recent years, made this matter so plain and clear that there does not seem to be any doubt as to the attitude that scientific men should take on this question.

The great mission of the vegetable kingdom is to store up energy, to convert kinetic or active energy into potential or stored-up energy, and since the plants take their nourishment directly from the elements, they do not take into their organism any substances which are detrimental to their vital processes, their *tissues* are not called upon to act as a sieve to separate their food material from waste material. The rootlets and leaves act as faithful guards and wise stewards in the selection and rejection of needed nutrition.

When we eat a food in the form in which God has given it to us,—in fruits and nuts and grains,—we take it in the most highly developed state in which it is possible to get it. It is at present well understood that the protoplasm of the animal and vegetable world is identical, that the protoplasm of the apple or potato is the same as the protoplasm of a man, but in man it has different properties and faculties. The white blood corpuscles of our own blood, chemically examined, are found to be the same thing as the amœba that swims in the stagnant pond; the form only is changed. Our bodies are like locomotives, —they utilize the force that has been stored up in the vegetable kingdom.

The animal has a body which is intended for tearing down and burning up and consuming force, and not for the purpose of organization. So when we take fruits, grains, and nuts, we find in them the maximum of energy, and we find in the animal a remnant of this energy that has not yet been expended, an abstraction of energies that have been used up to some extent, but that which is left is soiled and polluted. So in eating the animal we are eating the food at second hand.

Battle Creek Sanitarium.

DIET AND ENDURANCE

By Prof. J. D. Craig, B. S., M. D.

There is nothing that astonishes one more when commencing the study of food values than the wide discrepancy there is between common opinion regarding the value of flesh meat as a diet, and the actual facts.

Not long ago, in a lecture, the speaker stated that a pound of lean meat contained three times as much nourishment as the same weight of wheat, and, although very wide of the mark, this statement very accurately voiced the popular belief in this direction.

To discuss the subject at length would take up too much space in the Journal, and is also unnecessary, for a comparison of a few of the most common foods will give a fair average of all, and to this end the analysis of six articles of flesh meat and the same number of cereals, legumes, and nuts, is appended. The figures given here are taken from a pamphlet published by the government at Washington, entitled "The Composition of American Food Materials," and, so far as figures are concerned, they are beyond dispute, but they do not and can not give the absolute value, for this is to be determined in each case by the ability of the individual to digest and appropriate them.

This is more particularly true of the proteids, and herein lies the strongest argument that the advocates of flesh eating have been able to present; for it is probably near the truth that nearly all of the nitrogenous matter in flesh meat that is eaten is absorbed into the blood, whilst perhaps one-fourth of vegetable proteids is lost during digestion in persons that have lived for a long time on a mixed diet.

If this be true, and we are not prepared or disposed to dispute it, it can be more than offset by well-known facts in physics and also in the experience of those who in a whole lifetime have never tasted the flesh of any animal whatever.

In getting at the amount of proteids contained in foods the estimate is made from the nitrogen contained therein, and is not therefore correct in the case of flesh meats, because there is no distinction made between the nitrogen of the proteids and the end products of tissue change, such as urea, uric acid, creatin, creatinin, etc., although these products have no food value whatever. Neither does it take into account, nor can it do so, the losses that have taken place during metabolism, between the points of pure protein and these end products; for animal life is sustained only by retrograde change, and from the first moment that the proteids become incorporated in the living tissue until their final destruction, they begin to go back towards the inorganic conditions from which they were raised, because no energy in any form can be furnished the animal organism, or any other structure or mechanism, except the material from which it is derived is on its downward path; and the surrender of energy in all cases is in direct proportion to such descent.

Now no student of physics would think of claiming that a six-foot head of water could furnish the same power as one of twelve feet, nor could a weight falling from a one-hundred foot tower strike the earth with as much force as a similar one from an elevation twice as high. And in like manner proteids that have come down any part of the way from the highest position which they occupied in the plant to the inorganic forms from which they were originally derived, should not be estimated as containing the potential energy of pure protein, and certainly the end products which contain no usable energy should not.

It is not too much to say, then, that if the figures in food value tables that represent the amount of proteids in flesh meats were to be reduced to half, the real value would be more nearly arrived at. And it is much more than likely that the 118 grams of protein necessary for man's daily needs as claimed by Voigt, or 127 according to Atwater, are altogether too high, and this view seems to be confirmed by the experiments of Rubner, Pechsel, and others, who found that, where abundant carbohydrates and fats were used in the diet, 40 grams of the proteids per day were sufficient for mountain climbing and other laborious exercise. This accounts for the fact that Japanese laborers and other eastern people are capable of great feats of strength and endurance while fed on a diet of rice alone, in the composition of which there is but an average of eight per cent of the proteids.

Now, if we accept as true that not more than three-fourths of the proteids of vegetables, cereals, legumes, and nuts are utilized in the body, there is still a large margin in their favor over flesh meats; for the cereals come very close to the figures given for proteids in meats, and the legumes and nuts go considerably beyond them.

Furthermore, the proteids in all of the vegetable products are pure and at first hand and are not liable to rapid destruction, whilst that of meat is in the condition of rapidly falling into decay. There are two other very important advantages the foods of vegetable origin have over flesh meat, in that there is very much less water in their composition, and they also contain the carbohydrates in proportions ranging from nine to eighty-four per cent, of which the various meats are practically destitute. True enough, these latter are supposed by some to be the cause of much of the dyspepsia prevailing in this country, but this is owing to the fact that as a rule none of them are ordinarily even half cooked when put on the table for consumption.

Theoretically, then, it should be expected that, other things being equal, a person fed on vegetables, cereals, fruit, and nuts should not only be stronger than a flesh-eater, but his power of endurance should be infinitely greater, and this in fact has been found to be true; for where tests of strength and endurance have been made either in this country or Europe, vegetarians have much more than held their own, and where walking has been the test, the vegetarian athletes have invariably walked their flesh-eating opponents off their feet.

HUMAN ENDURANCE

Human endurance is the ability to sustain the functions of the body, either physical, mental, or emotional, for a considerable time under unusual and excessive pressure, and this power is possible only when there is a reserve of material stored in the body for emergencies that must necessarily come to all in some form during life in a greater or less degree.

It is unnecessary for the purpose of this paper to enter into details as to how, or in what manner, this is accomplished in the human, or any other animal structure; it is sufficient to know that every one is conscious of the fact that such a power exists, and that some possess a greater amount of it than others. Now, whatever advantage may be derived from ancestry in this respect, in the last analysis the ability to endure is the result of tissue changes at the time the energy used is set free; so that inherited capacity for endurance is simply the power to store away in the body more material for combustion than is needed for ordinary every-day uses; and no matter how fortunate one may be in the constitution received from parentage, the character of the food consumed day by day is, and must be, the determining factor in all cases.

The reserve force in the body derived from vegetable products, such as has been named, resembles a head of water contained in a dam, the banks of which are strong and enduring, and the gates well constructed and water-tight, that can be opened at will when power is needed, whilst in that furnished from a meat diet the dam itself is insecure, whilst it and the gates are leaking badly in every direction.

It is not claimed that a diet of flesh meat will not furnish a large degree of

energy under proper conditions, for many of the carnivora have great strength, and human beings often do a great deal of work on a diet made up largely of flesh; but what is claimed is that flesh eaters in all departments of animal life have little endurance. The lion and tiger seize their prey by stealth, and in the supreme moment, by two or three sudden bounds, but they are incapable of prolonged exertion, so that their intended victims have no difficulty in leaving them far behind if they are fortunate enough to escape the first onset. The vegetarian animals, on the contrary, are not only possessed of endurance, but great physical strength, for the strongest animals on earth belong to their number. Perhaps the most powerful animal, for its size, is the gorilla; it can bend a rifle barrel as if it were a green twig, and, by the way, it possesses canine teeth nearly twice as long as man's; and yet its diet consists entirely of nuts and other vegetable products, so that the canine teeth argument falls flat.

In the early days of the vegetarian propaganda, and even at the present time, many who abandoned the use of flesh meat suffered loss of flesh, strength, and health, but this was not in consequence of such abandonment, but because their new diet was not properly selected so as to secure all of the elements needed and in the proper proportions to sustain the body in health and strength. Most of the vegetarians are better informed now, for the science of dietetics is much better known at the present time than it has ever been before, so that the majority of those who have abandoned flesh meat are not only in possession of robust health, but, as before remarked, wherever tests of endurance have been made between vegetarian athletes and flesh-eaters the vegetarians have invariably come off conquerors. So marked has this been that the best-informed teachers of physical culture now advise the abandonment of flesh meat, particularly when their pupils are expected to make tests that will require endurance. Short spurts of boat rowing, bicycle racing, walking, running, or other athletic sports may be won by flesh-eaters, but long-distance tests are beyond their powers, for they rarely continue to the end, but almost invariably fall out by the way.

The following cases, abridged from a report in the Vegetarian Congress at Paris, bear out the statements made above, and add emphasis to them.

WALKING

In 1893 Herr Elsasser and Herr Pietz, in a seven days' walking race from Berlin to Vienna (372 miles), both of whom are vegetarians, easily finished first and second, beating the fastest meat-eating competitor by twenty-two hours; for out of a dozen or more that started in the race, but one of the meat-eaters got to the end of the course at all.

Karl Mann won the great German walking race of 70 English miles. Three other vegetarians arrived at the goal shortly after Mann. Only one of the flesh-eaters finished the race, and he arrived completely exhausted three hours later than Mann.

RUNNING

John Barclay won half-mile championship, 1896. W. Pfliederer won Lady Freake's challenge cup in one mile open race at Kings College sports, 1898 (England).

GAMES

Eustace H. Miles, M. A., who has written "Muscle, Brain, and Diet," won both amateur tennis championship and amateur racket championship for 1899, and also the tennis gold medal prize for 1897, 1898, and 1899.

BICYCLE RACES

George Olley, 141 miles, on a very hilly road, in 8 hours 31 minutes 48 seconds. He never dismounted during the ride; 100 miles unpaced road, 5 hours 55 minutes; 323 miles in 24 hours. Won altogether 32 prizes.

E. P. Walker, who is a life vegetarian, won over twenty prizes.

H. E. Bryning won the Bengal championship (10 miles) 3 years in succession.

Kurt Pfliederer and Eric Newman, aged 14 and 15 respectively, on rough roads, made 100 miles, the former in 6 hours 7¼ minutes, and the latter, 6 hours and 40 minutes.

J. E. Newman, a life vegetarian, on first attempt, made 175¼ miles in 12 hours.

S. H. Nickels, 100 miles in 4 hours and 14 minutes, and at another time 100 miles in 4 hours and 25 minutes.

T. H. Shultness-Young, 100 miles in 5 hours and 25 minutes. The last sixty miles were ridden against continuous rain and wind.

E. Wade, 174 miles in 12 hours.

COMPARATIVE VALUE OF FOODS

	Refuse.	Water.	Proteids.	Fat.	Carbo-hydrates.	Mineral.	Calories.
Round Steak . . .	7.2	60.7	19.0	12.8	none	1.0	895
Sirloin Steak . . .	12.8	54.0	16.5	16.1	"	0.9	985
Chicken	41.6	43.7	12.8	1.4	"	0.7	295
Brisket	23.3	41.6	12.0	22.3	"	0.6	1,165
Flank, medium fat .	10.2	54.0	17.0	19.0	"	0.7	1,115
Ham, fresh	10.7	48.0	13.5	25.9	"	0.8	1,345

Average potential energy, 966.6 calories; average proteids, 15.1 per cent.

	Refuse.	Water.	Proteids.	Fat.	Carbo-hydrates.	Minerals.	Calories.
Oatmeal	none	7.3	16.1	7.2	67.5	1.2	1,860
Whole Wheat Flour	"	11.4	13.8	1.9	71.9	1.0	1,675
White Flour	"	11.9	10.9	1.1	75.6	0.5	1,655
Dried Peas	"	9.5	24.6	1.0	62.0	2.9	1,655
Peanuts (shelled) .	"	9.2	25.8	38.6	24.4	2.0	2,560
Almonds " . .	"	4.8	21.0	54.9	17.3	2.0	3,030

Average potential energy, 2,072 calories; average proteids, 18.70 per cent.

INFLUENCE OF THE MIND UPON DIGESTION

By A. J. Sanderson, M. D.

Every physical function has its counterpart in the brain. There are nerve centers situated in the cortex which hold the reins of authority over every organ of the body. They excite, inhabit, and regulate these functions in harmony with the needs of every portion of the system. These nerve centers are closely associated with, and possibly a part of, the functions of the mind, and over them the mind possesses a strong influence. The alimentary canal, with its varied and important functions, is no less affected by mental influences than other organs; in fact, the sympathetic relation between the gastric function and the mind and other parts of the body, is more effectual than it is between any other organs. The mind thus has a powerful influence over the function of nutrition, though the immediate operation of the digestive forces is controlled by local reflex nerve action, stimulated by the sense of taste and the presence of food as it enters the alimentary canal.

It is well known that a fit of anger may temporarily stop digestion. The influence has a paralyzing effect upon nerve centers, and for the time being their functions are suspended. What a strong expression of an adverse emotion will do fully, a partial influence of a similar nature will do proportionally. Often this continued influence of a milder type, such as grief, worry, etc., has done more harm to the digestive organs than did the strong emotions that were only occasionally manifest. There are many dyspeptics where the gastric function has gradually failed or become deranged by the hindering influence of a despondent mind gradually weakening the nerve mechanism by which the functions were sustained. Even a mind unduly taxed by work will so rob the functions of its hearty support that they will sooner or later become diseased.

The possession of mind is a distinguishing feature between man and beast. The latter select their food simply by instinct and are almost incapable of departing from this intuitive guide. Man, however, is made to understand himself and to know his needs and supply them accordingly; he can adapt himself to varied surroundings, and arrange his diet to meet the needs of changed climate or conditions. The requirements of the system and the habits of eating create the sensation we call hunger, which is satisfied only by the taking of food. Our peculiar habits of eating are simply the product of our own cultivation. We think of a real or imaginary need of food until we partake of it. The repetition of eating forms a habit, whether it be at regular or irregular intervals, two or three, or even five or six times a day, or whether it be a wholesome or unwholesome article. It is left wholly with man's reasoning faculties whether his habits shall be cultivated according to the needs of the system; if they are, perfect nutrition will be established; if they are not, he is worse off than the animal who knows only to follow the instincts of the original habits of the species.

The cultivation of taste is one of the most important elements in practical dietetics. It is this sense which is the most essential factor in producing the reflex activities by which the digestive fluids are secreted. A man can exercise his will power to partake of a diet which his taste has not been able to appreciate, yet no will power can ever provide good nutrition out of a diet against which taste makes an habitual rebellion. Taste, to a certain extent, is a product of the mind. The way we most constantly and naturally think about a certain food, so our taste becomes cultivated. When the mind becomes rationally convinced that a certain food is unwholesome, and the individual is led to look upon it in the light of its defects only, the food itself will become distasteful; on the other hand, even a loathsome creature, if habitually thought about in the light of a delicacy, will become an object of special craving.

Consciousness of the digestive organs is an offense to their natural method of work. The more a man becomes conscious of his stomach, the less will be its capacity for performing real service. The dyspeptic who watches his stomach after his carefully-selected meal to find out how it may serve him, will always find abnormal symptoms. As bad results are likely to come from a good diet carefully and watchfully followed as from an ordinary unhygienic diet eaten in the bliss of ignorance.

It is never wise to expect anything but good results to follow anything which has been allowed to pass beyond the palate, which was nature's original agent to reject and expel every evil thing. The intelligent mind, however, will always possess such a fearful looking for consequences that it will never allow anything to approach that place that could prove a hindrance to perfect digestive work, or would fail to produce the highest type of nutrition.

A dyspeptic should never undertake to follow a course of experimental dietetics with himself, and scarcely will a well man ever survive such a tour of experimentation and come out with sound digestion. The mental factor in treating a case of dyspepsia must not be ignored. When a patient has been long suffering from a painful disorder of the stomach, it can only result in a fixation of the attention upon this organ; but one must learn that this fixation of the attention must be successfully diverted before any chronic gastric disorder can be successfully treated. One of the greatest helps in recovery is a knowledge of *vis medicatrix naturæ*. In these functions, like all others, nature has provided double and treble capacity for ordinary needs; even though one-half of the digestive agents are destroyed by disease the other half are abundantly able to provide good nutrition, providing the disease is not malignant and that its nature is not such as to prevent the food products coming in contact with the yet remaining healthy forces.

In our every-day life we are shaping the character, which will determine what our actions shall be in times of crisis. Heroes are not made on battle-fields.

DILATATION OF THE STOMACH

By David Paulson, M. D.

A DILATED stomach, under ordinary circumstances, is a far greater calamity to the average individual than a dislocated shoulder would be. Just to the extent stomachs have been mistreated, to the same extent we have gastric disorders; and there is scarcely a condition that is responsible for more general disturbances than is a dilated stomach. The healthy stomach contracts so that it occupies a very small space when empty, while the dilated stomach always remains more or less distended, and rarely passes on all the food eaten at one meal before a new meal is introduced. The remnants of food left over in this crippled organ thus serve to contaminate the fresh meal, and so the digestive process, instead of starting right in the stomach, is in a more or less abnormal condition continually, and the improperly and imperfectly digested portions of food are passed into the small intestines in an infected condition.

Those individuals who are so fortunate as to possess strong livers and good intestinal digestive powers, may go on for years with a dilated stomach, and often continue, to a certain extent, to heap upon this faithful organ some of the same abuses which produce its present condition, and may suffer but little inconvenience from the same. Nevertheless, the whole system is gradually being undermined. The props of health are being removed one by one. Like the prodigal son, they are spending their inheritance "in riotous living," and they will soon come to want. The poor victim of serious stomach disorders will, sooner or later, discover that there will be "a mighty famine" in his system for a stock of nerve energy which his poor, disabled digestive organs can in nowise cooperate in producing.

SIGNS AND SYMPTOMS

The lower border of a normal stomach extends but very little below the ribs, but the lower border of an excessively dilated stomach can often be found five or six inches lower than this. A dilated stomach can ordinarily be readily detected by simply drinking a glass or two of water when it is supposed to be empty, and then lying down and drawing up the knees so as to relax the abdominal wall as much as possible. Little gentle taps on the stomach will then generally produce sufficient splashing so that even untrained fingers can outline the size of the stomach. A splashing sound, when the abdomen is raised up and down with the patient lying in a relaxed position, is also a reasonably reliable indication of a dilated stomach.

Regurgitation of fermented food particles half a dozen hours after eating suggests the same condition. Bouchard, a great French investigator, states positively that food remaining in the stomach five hours after eating is a sign of abnormal conditions. If it is allowed to remain six hours, there is sure to be serious fermentation, and if it remains there over eight hours, it is certain to produce various decomposition products that will tend to poison the whole system. Such patients are likely to suffer, more or less, with dull headaches,

feeling of weakness, and a disinclination to take hold of any work in an active and thorough-going way. The tongue is coated, the breath is offensive, and many other minor symptoms manifest themselves.

TREATMENT

Such individuals frequently have an abnormal appetite, and thus by over-eating tend to aggravate their difficulty. It sometimes becomes necessary for a time to have meals served on a tray in a room, and only a certain specified amount provided, until the will power has gained the supremacy over an abnormal appetite. A dry diet should be almost strictly adhered to. All breads and grains should be well toasted. Such grain preparations as granola, crystal wheat, and zwieback, meet this situation in an admirable manner. Intensely acid or excessively watery fruits should be avoided. The only form of milk which is allowable at all is buttermilk, although in some cases a slight amount of cream will occasion but little distress. Water drinking should be avoided until several hours after eating.

Cold applications should be made over the stomach for ten or fifteen minutes twice each day. The moist abdominal girdle should be worn at night. This consists of a linen bandage eight or nine inches wide and about three yards long, which should be wrung out of cold water. Over this should be wrapped a flannel bandage several inches wider, and over this, if there is any tendency to chill at night, some impervious covering, as oiled silk, oil-cloth, or mackintosh. On removing the moist abdominal girdle in the morning, care should be taken to always sponge the trunk with cold water and follow with vigorous friction, so as to produce a good healthy reaction.

Most persevering efforts must be made to strengthen the abdominal muscles, as this will not only assist in preventing prolapses of other abdominal viscera, but will actually serve to assist in curing the dilation of the stomach. Every morning, before leaving the bed, the patient should practise for several minutes raising first one foot several feet directly upwards, and then the other, repeating a dozen times. This should be done while lying on the back. As the abdominal muscles grow stronger, both feet may be raised at the same time, then the shoulders and head may be raised from six inches to a foot, and after a time, the shoulders and head and feet may be raised at the same time. This places a great strain upon the abdominal muscles, and should be attempted very cautiously, especially by those who have extremely weak and flabby abdominal muscles. The good to be accomplished from this simple procedure far outbalances the time and perseverance necessary to faithfully carry it out.

Such patients should avoid a sedentary life and should seek outdoor labor as much as possible. The man who has a dilated stomach may make no more success in getting rid of it than Paul did of his "thorn in the flesh," but he may live in such a careful and sensible manner that, instead of laying the foundation for serious maladies that would otherwise end his life prematurely, he may far outlive some of his associates who are so fortunate as to possess good stomachs but do not have the good sense to properly care for themselves.

Chicago Branch Sanitarium.

DIET IN FEVERS

BY H. E. BRIGHOUSE, M. D.

IN health, the bodily temperature remains at a fairly constant point, about 98.4° Fahrenheit. Variation from this is very slight. The bodily functions are performed best at about this temperature. The temperature of cold-blooded animals changes with the environment, and the bodily functions are performed equally well at various temperatures. But with warm-blooded animals a practically stationary temperature of the body must be maintained in order to perform the bodily functions best. In fever there is an increase of the temperature, and a consequent impairment, derangement, or suspension of the bodily function.

With increased body temperature, the secretion of the digestive fluids is interfered with both in quantity and quality. The dry tongue, mouth, and throat indicate the condition of the entire alimentary canal. The secretion of the digestive fluids is very much lessened if not entirely suspended. The high temperature is itself detrimental to the action of the digestive fluids, so that normal digestion is impossible. The most unfavorable condition for digestion is present,—imperfectly formed digestive fluids, acting under very unfavorable conditions.

Because of the lack of moisture, absorption is interfered with or prevented altogether. The condition being favorable for the growth of bacteria, digested and undigested food in the stomach and intestines readily becomes a fermenting, putrefying mass, at a time when the system is powerless to cope with the germs or the toxins resulting from their action. As a result, the fever is increased, and the system greatly hindered in its effort to overcome disease.

Every one recognizes the necessity of sustaining the body during a siege of fever, but from the foregoing it can readily be seen that unless feeding is adapted to the conditions present, it were better to let nature alone. Wrong feeding only adds to the already overburdened condition of the system and increases the fever.

Nature herself indicates the course to pursue. Appetite is gone. The tongue is furred, the mouth dry, and the patient thirsty. The digestive functions are unable to take care of ordinary food, and so nature takes away the desire for food. If at the beginning of a fever we heed this warning, and, instead of coaxing the patient to eat some indigestible dainty, if we give fluids freely,—fruit juice, water, lemonade, orange juice, etc.,—and give no food, frequently the fever will disappear at the end of twenty-four to forty-eight hours, without any other treatment.

When it is manifest that the case is likely to be prolonged, and that the body must be sustained under a long siege of fever, the same principle is still to be followed. Liquid food must be furnished in only such quantities as the digestive organs can care for. Ordinarily putting food in the mouth starts the saliva to flow, but not so in fever. The system can not supply moisture, yet needs it, hence the necessity of giving liquid food. It must be

easily digested or partially predigested. Because the impaired condition of the digestive function can only perform such imperfect work, the cook-stove must be made to do all possible work of digestion, by thorough cooking, that the work of the digestive organs may be made as light as possible and absorption accomplished quickly.

Among the foods most commonly used in fever are the following,—milk, malted milk, buttermilk, koumyss, milk-shake, egg-nog, egg-whip, malted nuts, and gruels of various kinds.

Milk is the most easily obtainable and easily prepared, and is adapted well to many cases, but it is seldom pure, and is so easily subject to contamination that unless sterilized it is unsafe, and when sterilized in the ordinary way it loses some of its good qualities. Yet some cases do better on milk than on any other food.

But because of its tendency to coagulate into hard masses which are indigestible in the feverish state of the system, it frequently can not be used. Peptonizing the milk may suffice. This is done by using Fairchild's peptonizing tubes and preparing according to directions. Other cases can use buttermilk or koumyss. The slight acidity is gratifying to the thirsty condition present. Malted milk is also a substitute when milk can not be used. But if milk in any form adds to the coated tongue and bad taste, it should be altogether discarded from the diet list.

Egg-nog and milk-shake are preparations of milk and egg, and, in cases that can use milk, form a pleasant, nutritious addition to the diet. Orange juice, lemonade, or fruit juice of any kind may be used instead of milk in the preparation of the egg-nog. No other flavoring is necessary, and it makes a very pleasant drink, while meeting all requirements for nutrition.

Gruels for fever cases must be thoroughly cooked, four or five hours' boiling being necessary for ordinary grains, like wheat, oat, or corn meals. After thorough boiling, they should be strained. Gruels may be made very palatable by thinning with fruit juice of some kind, and served as a drink. Well-cooked, nicely-prepared gruels ordinarily agree with any one, and are preferable to milk as a diet.

Malted nuts is both palatable and easily prepared and usually well digested. It may be served hot or iced. The addition of fruit juice makes it more palatable and more cleansing.

Beef-tea, broths, etc., have the reputation of being the diet for fevers. But science has demonstrated the fallacy of this. Analysis of beef-tea shows that it contains little nutrition, consisting largely of waste products, destined to be eliminated by the kidneys. In fever, the kidneys are already overtaxed by the increased elimination of waste material due to the fever, and a diet of beef-tea simply adds a greater burden to them. True, the beef-tea acts as a stimulant, as a result of the waste matter present in it; but if stimulation is desired, there are other and better ways that do not tax the kidneys. As nutrition is what is sought for, and the beef-tea does not contain it, it is better to discard it from the diet.

Sanitarium, St. Helena, Cal.

INFLUENCE OF CLOTHING UPON DIGESTION

By Mrs. Adelaide Moran

The influences acting upon digestion are many and varied. Those most frequently considered are diet and exercise, but of those not so often mentioned, that of clothing is worthy of serious consideration.

When a blacksmith works at his anvil he finds it necessary to so adjust his clothing that the action of no muscle is hindered; even the ordinary suspenders are dispensed with. He must have freedom to move if his work is accomplished successfully.

Again, the athlete divests himself of every possible impediment when he comes to the final contest. He realizes that in order to accomplish most his muscles must have perfect freedom of movement.

The stomach is largely a muscular organ, and, like all other muscles, must have room to work; and not that only, it must be in its legitimate position to secure freedom of movement. Some people seem to have the idea that all the internal organs are held in place by strong attachments of some kind that are difficult to overcome. This is a mistaken notion. Their attachments are comparatively slight, the security of their position depending almost wholly upon the way they are fitted or packed together. This condition makes them very susceptible to unnatural pressure or strain.

Ladies who wear tight clothing seldom consider what influence their dress has upon the location of the internal viscera. We have often seen women with such compressed waists that we questioned where their stomachs, livers, and intestines must be, for they necessarily all have a place somewhere.

We frequently hear of dislocated joints, while but few have heard of a dislocated stomach, and yet the latter condition is more common than the former. We have often seen patients whose stomachs were six inches or more below the normal position.

Some may ask, "What does it matter if my stomach is not in just the right place?" We respond, "What is the result if the bones forming your hip joint are not in just the right place?" "Oh, that would make me lame!" "That is true, and you would also be lame in your stomach." The functions of the stomach are different from those of any joint, but when those functions can not be carried on properly there is a lameness, the results of which are manifest in the whole body.

A dislocated stomach can not empty itself in the usual time, because its muscular walls do not and can not contract naturally. The food remains in it too long a time, and fermentation takes place, thus destroying much of the nutrition and creating poisonous gases. It is this fermenting, decaying mass that must furnish nourishment for the entire body. It is only a question of time when weakness of the whole body must be manifested.

The gases formed in the stomach often greatly distend its walls. When this distention is long continued, the muscular walls lose their power of con-

traction, and to the prolapsed condition is added the serious complication known as dilatation. With this may come chronic congestion and catarrh of the stomach.

The injury of tight clothing to digestion does not stop with the stomach. The liver, pancreas, and intestines are all important factors in this process, and when they too are crowded out of place and cramped for room, their work is crippled accordingly. Constipation, which has come to be almost universal with women, is greatly encouraged by a prolapsed condition of the internal viscera.

Do not make a mistake by thinking that the corset alone, of all the articles of dress, is responsible for so much trouble. All tight belts and bands will accomplish the same results. A band with a heavy skirt sewed to it, and not suspended from the shoulders, will as certainly displace the abdominal organs as the tightest corset ever worn. The question of belts applies to men as well as women. A tight belt used to suspend the trousers, frequently causes prolapsus of the stomach and intestines.

We feel the importance of finding an immediate remedy for a dislocated joint, and we should not be less concerned about the cure for dislocated stomachs, livers, etc. These conditions require much time and great care to improve. The patient must return to nature's way of living. Every garment which presses upon the body must be exchanged for a loose one or laid off altogether, that nature may have a chance to bring the prolapsed organs back to their rightful position and condition.

Los Angeles Sanitarium.

EFFECTS OF STIMULANTS ON THE STOMACH

BY J. R. LEADSWORTH, B. S., M. D.

IN these days, when the environments of man are so unnatural, when from his earliest intelligence he is taught intuitively that the highest purpose in life is to live to eat and drink, that such an end is more nearly attained when something is found that will give the palate a twist as it is being swallowed, it is no wonder that a patient, upon being told by his physician that he might take a bitter powder in a capsule followed by a swallow of water, asked if he might take the water in a capsule too.

Under the head of the more common stimulants would come such substances as alcohol, tea, coffee, cocoa, and chocolate; many other articles of diet also act as stimulants by goading up the stomach for a short time after their ingestion.

Dr. Samuel O. Potter, a recognized author and teacher, says in his work on Materia Medica, regarding alcohol: "The continued use of small or moderate doses congests the stomach and liver, overstimulating the gastric glands and liver cells to the production of pathological secretion, causing gastric catarrh; . . . produces fatty degeneration of the heart, the arterial walls, and the various organs, and depresses the heart and arterial tension. Epilepsy,

paralysis, dimness of vision, and insanity may result from the long-continued use of spirits, alcohol having an especial affinity for the nervous system. The malt liquors (beer, ale, etc.) are even more apt to set up fatty degeneration of the liver and heart."

Thus by even the moderate use of stimulants of this nature one is treasuring up wrath against the day of wrath. The results are not seen until some undue strain or tax is brought upon the system, when there is a general giving way, with fatal results in the majority of cases.

The effects of tea, coffee, cocoa, etc., are equally pernicious. Aside from the fact that they encourage hasty eating by washing down half-masticated food, they contain substances which render the digestive juices inactive, thus contributing no small part in producing the race of dyspeptics, which the American people are known to be.

The great German chemist Lehmann, after extensive investigation, pointed out the injurious effects of these substances. He found that seven and a half grains of caffein, the active constituent of tea and coffee, were enough to make a person sick, and twenty grains were enough to make him dangerously sick. This experiment has been tried many times on cats, and seven and a half grains will kill a cat, which is said to have nine lives. Good Oolong tea contains about five per cent thein. According to the old rule, it takes a teaspoonful of tea to each cup, and a spoonful for the pot; that is about a dram. That is the recipe for making tea. A dram weighs sixty grains, and one-twentieth of sixty is three, so there would be three grains of thein in each cup of tea. Suppose a person takes three of these cups of tea, he would take more than poison enough to kill a cat, and if he should go on drinking he would very soon get enough to make him drunk.

Recently there was a club of newspaper reporters in England who met and had a spree on tea every Saturday night, and they used to get drunk on tea and get under the table before morning. Regular old topers, after having drunk tea a few hours, would become so intoxicated that they would become insensible.

It takes one part of alcohol in two hundred to produce insensibility, and one part in one hundred to kill a person, but it does not require nearly so much thein to produce the same effect; thein is a much more powerful drug than alcohol. A strong man, accustomed to its use, could take at least an ounce of pure alcohol without killing him, but one-tenth of that amount of thein would be a fatal dose; so it is ten times as powerful as alcohol.

The story is told of a tramp who, when confronted by a young wife and questioned as to his being the same person to whom she had given some of her cake a few days previous, replied, "Yes, mum; but, thank the fates, I got over it." So those who are constantly taking in these injurious stimulants get over it, but it is by the overactivity of every organ in the body; and thus premature decay and old age are brought on at a time when we ought to be enjoying the prime of life.

Sanitarium, Spokane, Wash.

A CHANGE IN DIET

By Mrs. Flora Leadsworth

The seasons come and go, and with each season comes a change in the garment with which nature robes the world. Not only do we see the change of garment that nature makes in this beautiful world of ours, but we feel the necessity of a change ourselves.

So we see in every household hands busy making light, airy garments to take the place of the heavy ones we have had to wear all through the long winter months. Now this is only the carrying out of nature's call for comfort and health. But nature makes another call as the seasons come and go, which but few understand, and that is a change in our diet.

As the summer is approaching, we no longer feel satisfied with the food we have enjoyed during the winter months, and thus many are tempted to overeat, or endeavor to satisfy this craving with extra sweetmeats and desserts. Then follows the bilious attack, which "always has to come in the spring," as you will learn from some one who will also tell of the many "herbs and pills that are necessary to keep away this spring sickness and purify the blood."

Now let us stop a moment and see if this is a perverted or unperverted craving we feel. First we learn that in the summer months and in all warm climates, we do not need the heat-producing foods any more than we need to wear our winter furs. And we have only to open our eyes to see nature holding out to us with lavish hand the very things that the system is calling for,—the succulent vegetables, and the many varieties of luscious fruits. If these, especially the fruits, are freely used as a diet in connection with the various grain preparations, you will find the call of nature satisfied, and the bilious headache, the herbs and pills, and the doctor bills, a thing of the past.

Some one will say, "I thought fruit was the cause of so much summer complaint." Perhaps, if eaten before mature, or in a decaying condition; although we believe bad water to be the cause of the majority of such complaints. But remember, we are not recommending anything but good ripe fruit, any more than we would recommend improper clothing.

Fruit can be used either fresh or cooked, as one likes, but should always be thoroughly cleansed, especially strawberries, or any fruit grown near the ground. When thoroughly ripe most fruits do not need any sweetening, as they contain sufficient fruit sugar, which is very easily digested, while the cane sugar that is used in sweetening hinders digestion, and if used too freely destroys the delicate flavoring of the fruit. They should be eaten at meal time, and, as they are easily digested, should never be eaten with the coarse vegetables, which require a long digestion. Fruits and fruit juices act as a tonic to the system, and are nature's laxative.

As there is no end to the different ways in which the different varieties of fruits can be used, from the refreshing drink to a substantial meal, we hope that all will cultivate the habit of a more abundant use of fruits, and be as wise as the little ant, and lay up for winter's store such things as can only be gathered in the summer months.

Sanitarium, Spokane, Wash.

DIET FOR THE SUMMER MONTHS

By George A. Hare, M. S., M. D.

The problem of keeping well and strong is a much more simple one from a practical standpoint than many think, and consists chiefly in taking into our bodies energy-laden food, breaking up its chemical structure, which liberates the energy, and disposing of the residue. Nearly all the food stuffs in use would be found to have an abundance of energy if we would liberate it; but there is a great difference in the ease with which we can liberate in our bodies the energy from different food stuffs, and still greater difficulty is encountered in disposing of the unused or partly-used residue.

While many of us are the happy possessors of good stomachs, the average American is at times made conscious of certain gastronomic disturbances. The selection of food and the preparation of the same, therefore, is a very practical question at all times, but is more especially so during the summer months; for most of the sicknesses from which people then suffer, such as headache, malaria(?), biliousness, torpid liver, bowel troubles, and many of the fevers, are simply the result of a badly-selected diet, and can certainly be avoided. The majority of people eat too large an amount of strong food at all seasons. During the colder months a portion of this excess may be burned in keeping the body warm, but during the hot weather these summer sicknesses and bad feelings, from which so many suffer, are only symptoms of the difficulty which our bodies encounter in disposing of the residue or unutilized portion of the food.

In warm weather the germs of fermentation and putrefaction are most abundant, and enter our bodies daily both with our food and the air we breathe; yet they are perfectly harmless to any one who properly feeds his body. These germs of disease are not able to harm us until by a process of wrong living we lower our powers of resistance, and invite their destructive inroads.

If in warm weather we eat largely of rich foods, meats, fats, cakes, pastries, etc., with tea and coffee, we may expect to suffer, because we can not perfectly digest such food—we can not chemically break it up; therefore, we get only a part of the energy which the food contains. But this is not all the mischief that results. The half-broken-up products, which we can not use, are present as small crystals or other poisonous substances, which confuse the mind, cause headache, neuralgia, inflamed joints, catarrh of the stomach and bowels, and irritation of the kidneys, and lower the power of resistance, often paving the way for tuberculosis or Bright's disease. Nor is this all. When we do not digest our food with vigor and despatch, we offer an excellent place for various forms of bacteria. They multiply by the millions, and fermentation and putrefaction are active. Each bacterium throws off from its own body a little poison These poisons are absorbed into our blood often more rapidly than we can eliminate them. This process of self-poisoning disturbs the bowels, and they become inactive or irregular, the tongue becomes coated, the appetite is gone, the skin gets sallow, the liver torpid, the eyes dull—we are sick; and

we fondly charge our sickness to malaria or bad climate, if we live, but if we die from our errors of eating, our friends reverentially(?) charge it to a dispensation of Providence.

From a residence of ten years in one of the hottest valleys of California, the writer is convinced that more than nine-tenths of all the so-called malaria which is prevalent in the summer season, is not malaria at all, but is simply the result of clogging the system by bad feeding. It is the result of self-poisoning, due to the absorption of poison from the fermentation of undigested food. As proof that these cases are not true malaria, we quote the following paragraph from a paper read by Dr. Philip King Brown, before the California State Medical Society, in 1899: "Indeed, in the two years from April, 1896, to April, 1898, among 263 cases examined by me for physicians and in clinics, with special reference to the presence of malaria organisms, in cases where malaria was a supposed factor, in only ten cases were the organisms found."

A diet suitable for the hot season, while it must contain all the essentials of good food, and in sufficient amounts, should not contain a large amount of material which, if unused, would give rise to poisonous putrefaction. This is one reason why meats and rich foods are so objectionable. Such a diet should be composed of grains, fruits, and nuts, carefully selected and intelligently prepared.

Good bread must be light, well baked, free from the slightest trace of sourness, and at least twenty-four hours old. Most people will find it much more readily digested if they have it toasted in an oven in the form of zwieback. Most of the grains served on our tables are not well cooked. If served in the form of mushes, they should be cooked at least two hours in a double boiler, without stirring. Mushes prepared in twenty minutes are a delusion. They can not be readily digested. Mushes are much better if eaten with fruit, in place of cream; and nothing is nicer than fresh strawberries, blackberries, or sliced peaches, which can be had in abundance during the hot months.

While mushes are by no means the best food, still they find a place on almost every breakfast table. Being soft, they are too often taken into the stomach without being masticated. For this reason it is best to eat them with dry toast, which will insure a thorough insalivation, and thus stimulate the stomach to active digestion. Among the materials for mushes, gluten is probably the best. Some preparations of gluten are partially cooked before being placed on the market, and for this reason can be more quickly prepared for the table.

Grains are much better if taken in some manner that requires thorough mastication, as this is the first step in the process of digestion. For this reason many of the health-food products, which have recently come into the markets, are receiving a well-deserved welcome from the public. Granose, gluten sticks, and similar preparations are almost ideal foods of this class.

In addition to grains, one will find a liberal use of fresh fruits an essential to good health in hot weather; and nature has provided them abundantly at this season of the year. Fruits should be perfectly matured and thoroughly

ripened. Nature gives us an object lesson in diet when she presents her fruits delicately colored, made toothsome with most exquisite flavors, garnished in their settings of emerald leaves, and perfumed with their own inimitable aromas. Yet many are content to turn from these bounties of nature and be fed with the vile compounds served at the average restaurant, and then wonder why hot weather does not agree with them.

Those who think that fruits do not agree with them may be taking vegetables at the same meal with fruits—a very poor combination—or they may be taking fruit with milk or cream. They would find fruit much more acceptable to the stomach, and to the palate as well, if they would add to the half-crushed berries a small amount of sugar and a few spoonfuls of water which will bring out the flavor of the fruit much better than does the addition of cream.

To fruits and grains should also be added nuts, which, if taken as a part of the meal, mixed with other food, and thoroughly masticated, present a most acceptable form of proteid or albumen food. Nuts are much cleaner, more wholesome, and more nourishing than flesh meats. They contain all the food elements found in meat, and in larger amounts.

To keep our bodies cool in summer it is necessary to drink much more water than in the cooler months. We can often drink to advantage a glass of water in the morning, but after breakfast we will find it better to take most of our drink in the latter part of the day, in the afternoon and evening. This is particularly true in the hotter portions of the country, where, on account of the high temperature and dry atmosphere, enormous quantities of water are sometimes needed. Care must be taken not to disturb the process of digestion by drinking too freely shortly after meals. And right here let us remark that diet, drink, and clothing are governed by no fixed and inflexible rules, but must be modified and adjusted to the various seasons and conditions under which we live. This renders it necessary for every one to have a practical acquaintance with the principles of nutrition, as related to diet, food, and work, and apply these principles to his various needs.

Those who desire to become rapidly acquainted with the more modern improvements in good living, will find a short time spent at some good sanitarium (such, for example, as the one at St. Helena, which, from personal experience, the writer can heartily indorse) to be most helpful in acquiring a working knowledge of these principles.

Let those who suffer during the summer months improve their methods of living, particularly their methods of feeding. Let them adopt a simpler but much more nourishing diet, composed of fruits, grains, and nuts, prepared in a wholesome manner, in pleasing variety, and presenting an artistic appearance; and let it be partaken of under cheerful mental conditions. The bowels should move freely and at regular hours every day. Water should be used freely, which may be rendered more acceptable if carbonated, and at times may be made still more acceptable by the addition of lemon or other fruit juice. Let the process of self-poisoning which results from bad feeding cease, and the

summer months will be anticipated as the most enjoyable season of the year. That "tired feeling" and dull morning headache will give place to a buoyancy of spirit and a sense of gratitude to the kind Providence which awakens one every morning to the renewed enjoyment of all those blessings which cluster around, and make up that experience which we call health.

Fresno, Cal.

DEXTRINIZED FOODS

By G. H. Heald, M. D.

Bread, "the staff of life," the staple food for a large proportion of the earth's inhabitants from the earliest times, has its disadvantages, so apparent to some that certain vegetarians even go so far as to allude to bread as the "staff of death;" in fact, they discard the use of cereals altogether.

The principal element in cereal foods, whether breads, crackers, or mushes, is starch, constituting about three-fourths of the nutritive elements. Starch, one of the most abundant products of plant life, consists of minute granules, which may be compared to a chestnut, having inside the digestive portion and outside a hard woody shell, which is not acted upon at all by the saliva, and only with some difficulty by the pancreatic juice.

Thorough boiling bursts the cell walls of these starch granules, liberating the digestible portion, so that it is readily acted upon by the saliva. Thin starch paste, if taken into the mouth and masticated for a few seconds, will be changed rapidly into sugar, because the saliva reaches every particle of the starch and transforms it almost instantly; but in the case of mushes and breads the saliva can not penetrate all portions of the food, and so a part of the starch enters the stomach undigested. During the first half hour of stomach digestion, this starch continues to digest, provided saliva has been thoroughly incorporated with the food. After this period, the acidity of the stomach becomes so great that starch digestion ceases.

When, through insufficient cooking or imperfect mastication, the starch is not sufficiently digested in the stomach, fermentation results, with the formation of lactic acid and possibly butyric acid, accompanied by the various symptoms of indigestion. In fact, most stomach indigestion is starch indigestion.

In order to facilitate the digestion of starches, they may be put through a process known as "dextrinization," by which the starch is converted in whole or in part into dextrin, a substance intermediate between starch and sugar.

This process consists in keeping the starch at oven heat until it is quite thoroughly browned. The dextrin is much more readily digested than raw starch or even boiled starch; moreover, the process of oven drying renders the food more brittle, so that mastication permits the saliva to enter freely into all parts, and thus be more thoroughly incorporated. It is for this reason that rice browned in the oven before it is steamed is more digestible than ordinary rice. Other grains, such as rolled wheat, rolled barley, cracked wheat, may be treated in the same way, that is, parched before being made into mush.

Grains prepared in this way are never so sticky and are far more digestible, with the exception of oats, which when treated in this way is bitter on account of over heating of the oil.

Thoroughly baked potatoes are more digestible than boiled potatoes, and the outer portion of the potato than the inner. Potatoes which have been mashed may be rendered more digestible by browning in the oven. Ordinary bread is rendered far more digestible by the process of cutting into thin slices and browning in a slow oven, so that the dextrinization is complete throughout the slice. Ordinary toast made by browning the outside of the bread is a poor substitute for zwieback. The preparation known as granose is an example of dextrinized food; it consists of grains of finely-selected wheat which has been cleaned, steamed, oven dried, rolled out between steel rollers, and again oven dried, so that it is cooked three times. The starch granules are burst by the boiling process, and the roasting of the thin flakes turns a large proportion of the starch into dextrin, thus rendering it an ideal food.

THE RESOURCES OF THE VEGETABLE KINGDOM

BY B. FRANKLIN RICHARDS

ON looking from my upper-story window this morning to the ground below, my attention was drawn in a strange manner to a small garden patch about twenty feet wide and perhaps fifty feet in length. At the farther end of this miniature garden several rows of dark green, healthy-looking pea vines were growing, while between the leaves in hundreds of places were blossoms with their smiling faces soon to give way to the pods that will inclose the rich, strength-imparting legumes. Next came several rows of beans, with their broad green leaves tinged with yellow, and as they moved up and down in graceful action, bringing to view their flowering bloom, I was reminded of bean soup, baked beans hot or cold, Boston style, or California style. In fact, when served in any shape, as long as they are cooked and not burned, they are good. By the side of the beans half a dozen rows of potatoes were growing. An air of independence seemed to arise from them, as much as to say, "We have our place to fill, and a duty to perform in furnishing life to the human family, just as important as our neighbors."

Radishes and lettuce grow in the remainder of the garden, ready to be served in salad or side dish at a moment's notice. I thought as I stood looking down on this useful and active spot of nature, How very productive this soil is! And with this came the question, Where does all this power come from? And almost with the same breath came the answer, From the Creator, GOD. When He made the earth He said, "*Let the earth BRING FORTH;*" so the peas, beans, potatoes, radishes, and lettuce are growing in obedience to that command. From this garden my thoughts chase each other through my mind in an irregular train. I think of my boyhood days in the mountains of Pennsylvania, where, after the first white frosts came, together with other boys I would climb both short and tall trees, gathering in many bushels of chestnuts, walnuts, butternuts, and hickory nuts. Those trees had grown without help from man, in places where cultivation was impossible, where the

spade, hoe, pick, or plow had never penetrated the soil. Some of those trees were very large and tall. How long had they been there?—We knew not; perhaps centuries, and perhaps the same species began growing when the earth was told to "bring forth;" why not? for beneath where those trees were standing, hundreds of feet below, in the bowels of the earth, miners were at work blasting the hard anthracite coal.

At other times we would accompany our parents to mountain tops for the purpose of gathering the sweet, luscious berries that grew over thousands of acres of wild, uncultivated land. Who planted them there?—God,—the same who commanded the earth to "bring forth." Look with me over fields of every country nearly, and see grain of various sorts, wheat, rye, oats, barley, rice, and others, laden with nutrition ranging from eighty to eighty-nine per cent. Then look on hillside or valley, whether at home or abroad; orchard after orchard comes into view. Some trees are white with blossom, others are laden with growing fruit, while the limbs of others must be supported or they will break with the heavy weight of the fast-ripening product.

The resources of the vegetable kingdom are unlimited; we ship to and receive from other countries an endless variety of earth's product, so that in time we become acquainted with the food of man everywhere. In the great storehouse of nature the variety is so extensive that it would be impossible for man in his normal condition to become tired of his food. Think of the tuber and bulb family that grow underground, then fruit from the trailing vine that clings close to the ground, also the taller vines, then pass through the large family of shrubbery, producing fruits, berries, and nuts, then up and up through a regular forest of cherries, plums, dates, apricots, nectarines, peaches, pears, bananas, oranges, quinces, guavas, prunes, figs, and apples. We can not take space here to give the names of fruit that comes to us from foreign lands; for they are legion.

Brief mention must be made of the nut family before we close; for no table is complete in its setting without them. They bring smoothness to the skin, luster to the hair, and heat to the body, so they are indispensable in the maintenance of perfect health. Nuts are to the body what fuel is to the stove.

As we think of the vegetable kingdom, its productions rise in gigantic pyramids before us, and we feel obliged to ask this question, What were all of these articles made for? and, as in the beginning of the chapter, an answer is given, "To you it shall be for meat." What, have You really made each of those many articles for man to eat? "To you it shall be for meat," is the answer given. What a wonderful Creator and generous Provider our God is! Is it not strange that, in the face of this most astonishing generosity of the Lord to the children of men, about twenty-five per cent of them should become dissatisfied with this large and liberal menu, and turn to killing and devouring their poor fellow-creatures? How fearfully hard it is to satisfy man! Every vegetable, fruit, nut, and grain has printed on its face: "For you, O man, I was made for meat! Eat and live; there is an abundance; spare the poor animal, your fellow-creature, and he will spare you."

San Francisco, Cal.

EXERCISE AN AID IN DIGESTION

BY G. A. DROLL, M. D.

THAT exercise is an aid in digestion is demonstrated to even the casual observer almost daily. The teacher, bookkeeper, the lady of luxury, and the host of other sedentary workers so plentiful in our cities, give us daily examples of poor dyspeptics, with sallow complexions, torpid liver, coated tongue, foul breath, a tired feeling, and dull mind, all to a large extent due to a lack of proper and sufficient exercise in the free outdoor air and sunshine.

The tiller of the soil and the woodman, on the other hand, can with comparative impunity indulge in an excess of food and a gross diet and maintain fair digestive powers, with comfortable health and a good degree of vigor and strength. It is exercise that sharpens the appetite and makes simple food, without fiery condiments, palatable to the sturdy woodman.

The babe, lying in its crib, is almost constantly while awake, under the impulse of instinct, putting its body through vigorous exercise, by the constant activity of its limbs and body, thereby aiding digestion and working up a relish for its simple food.

Man, as all other animate creatures, is born to exercise, and his digestive and nutritive processes can be most naturally performed when he obeys the mandate which sends him forth to "subdue the earth" and "to dress and keep it," and to eat his daily bread "in the sweat of his face."

There is probably nothing more clearly demonstrated than the beneficial effects of exercise upon the process of digestion when judiciously taken. Daily exercise, preferably in the open air, promotes digestion in several ways. One of the first results of exercise is to increase the circulation of the blood throughout the entire body, and thus wastes are at once removed, that can be replaced by new material, and so create a demand for an increased supply of nutriment, which is followed by an improvement in appetite. While vigorous exercise should not be taken immediately after meals, yet moderate exercise, gradually increased up to the normal working capacity for the individual, is physiological and highly conducive to good digestion and the perfect performance of the nutritive processes of the body.

The increased respiration that follows exercise is of special help to move the blood through the liver, stomach, and intestines. The liver, with its peculiarly-arranged circulation, acts as a pump to hasten the blood through the stomach and intestine, under the influence of the increased movements of the chest and diaphragm. This increased circulation of blood through the organs of digestion promotes the secretion of the digestive fluids in sufficient quantity and quality.

The length of time the food remains in the stomach is much shortened by exercise. The increased movements of respiration have a direct effect upon the stomach and intestine to increase peristalsis and mixing of the food with the digestive fluids, thereby insuring more perfect and rapid digestion.

Sanitarium, Sacramento, Cal.

SOME FEATURES OF EXERCISE AT THE ST. HELENA SANITARIUM

EDITORIAL COMMENT

INTESTINAL ANTISEPSIS

RECENTLY it has been observed that vaseline is a good remedy for consumption. Patients having a dose of vaseline two or three times a day gain in flesh quite rapidly, and the symptoms of consumption gradually disappear. Now vaseline is perfectly indigestible. We speak of beans being indigestible when we mean that they become a food for certain class of germs, the products of which cause us distress. Vaseline, however, is not a food for germs, neither is it a food for man. It is not poisonous to germ life, but mechanically it prevents the growth of the germs. Wheat in the bin does not grow, on account of lack of moisture. Germs in a concentrated sugar solution or salt solution will not multiply, for a similar reason. The vaseline evidently acts in this manner to retard the growth of intestinal microbes, and so while none of it enters the body, a much larger proportion of the food is utilized, because the germs do not come in for their share.

In the cases above mentioned it was observed that the use of vaseline distinctly lessened the products of decomposition passing off from the urine, showing that less were being absorbed. Confirmatory to this is the fact that in the Arctic regions nearly every one gains in flesh. This, to a certain extent, is probably due to the tonic effect of cold on all the functions of the body, including digestion and assimilation, but also to the fact that in these regions microbes are extremely scarce, and observations indicate that the intestinal tract of man and animals may be quite free from microbes, so that the food is utilized to much better advantage by the body.

It is generally known that the symptoms of dyspepsia are nearly all caused by the action of microbes in the digestive tract. One may swallow buttons, peach pits, marbles, etc., with less distress, perhaps, than he can take a glass of milk. It is not the milk but the microbes that cause the trouble.

This digestive disturbance may consist of heaviness, pain, or bloating, which are more distressing than serious; or it may be accompanied by the formation of poisonous products, to be absorbed into the blood and cause headaches, nervous and mental disorders, diseases of the kidney, liver, blood-vessels, and a host of others. It causes a lowering of the defensive forces of the body, rendering it an easy prey to other diseases. Typhoid fever, cholera, etc., claim as their victims those whose bodies are "run down."

Now the action of the vaseline in the cure of tuberculosis is to clean the intestinal tract of germs, and thus prevent the absorption of such quantities of poison.

The old doctors who made a routine practise of cleansing out their patients by means of a calomel purge were not so far off. We may have laughed at the idea of trying to drive out a disease as an entity; but they did succeed in driving out a large quantity of microbes and their accumulated products. We know better ways to accomplish the same result.

The "Hall" treatment of flushing the colon, the "internal bath," and similar processes, are on the right line, only the promoters are sometimes in danger of pushing one idea to the exclusion of others. Cleansing the intestinal tract is certainly a most important step toward health.

Another point which is helpful in securing a comparatively aseptic condition of the stomach and bowels, is to eat foods which do not favor decomposition, especially decomposition with the formation of poisonous products, such as meat.

NECESSITY FOR INDIVIDUALIZATION IN THE TREATMENT OF STOMACH DISORDERS

"FROM a clinical point of view, the digestibility of a food is not absolute, but individual and variable. The food and its palatable properties are the only fixed elements in the problem. The stomach and intestines are as variable in power as is the general strength of men, and are as individual as the human face. Often touched by hereditary taint, on both the stomach and intestines are written the biography of their possessor, the record of past diseases, and the salient points in the mode of life. Both become adapted to their environment, which is composed, on the one hand, of the matter in contact with the mucous membrane, and, on the other, of the state and characteristics of the organism. The food and its associations, the products of digestion, fermentation, and decomposition, the flora of the stomach and intestines, are, for no two persons, exactly the same. Secretion is variable, and all of these are individual. Consequently, individualization is a commanding principle of dietetics and a modifying factor of digestibility. A knowledge of food and its general digestibility, of the state and needs of the organism and its parts, can serve only as guiding threads."—*Van Valzah.*

The writer is convinced of the truth of the above quotation. The attempt to determine the quality of digestion by ascertaining the amount of acids, normal and abnormal, in the stomach fluid, is crude at best, and is misleading in proportion to the amount of minutiæ and detail with which the results are obtained. We know little about normal digestion, and it is about as sensible to call five feet six inches the normal height of man and try to make all men conform to this standard, as it is to say that a certain amount of secretion is normal and that amounts above this should be diminished and amounts below increased. The normal probably varies within wide limits.

In all cases the food somewhere in the intestinal tract comes in contact with microbes. Now it is a well-known fact that microbes or germs influence each other in a marked degree. One species may increase or decrease the activity of another species. The combined action of two species may produce poisonous substances when either alone might be harmless; the composition of the digestive juices and the food have also marked influence in the activity of the germs and in their products. As the digestive fluids are not exactly alike in any two persons, and as the germs vary with each individual, the varieties of stomach disorder are practically infinite, and each one must be studied by itself. No tables or rules taken from so-called normal stomachs can be used as a standard to which individual stomachs must be made to conform.

PRACTICAL HINTS

CONDUCTED BY
W. HARRIMAN JONES, A. B., M. D.
ST. HELENA SANITARIUM

THE TEETH

THE importance of teeth in digestion is not sufficiently recognized. Dr. Stockton maintains that many cases of chronic indigestion arise from imperfect mastication due to faulty dentition. In all such cases it is of primary importance to have decayed teeth filled, or, if there are many missing teeth, they should be replaced by artificial ones. Otherwise medication and dietary regulation may be of little avail.

In some individuals the teeth are naturally good and sound, just the same as the skin of some persons is naturally clear, beautiful, and healthy. However, even when reasonably intelligent care is given the teeth, decay is a constant source of anxiety to many people. This difference undoubtedly depends to some extent upon some peculiarity of nutrition. A proper diet and good digestion and assimilation will build up healthy tissue in every part of the body; so good teeth depend at least in part upon good nutrition. But, beyond this, the form of food itself seems to play a part in dental health. For instance, it has been noticed that those teeth which are least used are the more delicate and liable to decay, while strong, healthy teeth, even to old age, seem to occur most often in those who live upon coarse and resisting foods, requiring vigorous mastication.

Diet and Nutrition

But there is yet a more direct cause of decay of the teeth. Germs are always found in connection with dental decay. More than fifty varieties have been isolated. Just how they work and cause decay is a disputed question, but it is certain that by some chemical or physical process the tooth is destroyed and the process which we call decay results. When fragments of food, together with the secretions from the mouth, find lodgment between and around the teeth, in secluded spots removed from the action of the tooth-brush and other articles commonly used to dislodge them, a favorable soil for the growth and development of germs is afforded. This is especially so when there is irritation of the gums, in which the gums retract and expose the teeth where they are unprotected by enamel, or when the mouth is continually subjected to the irritation of tobacco or acrid foods, also when tartar is allowed to accumulate on the teeth or there is carelessness in the use of the tooth-brush, toothpick, or in properly cleansing the mouth.

Germs

Thus, to keep the mouth in a thoroughly clean and sweet condition is of the utmost importance to prevent decay of the teeth. There are few people who give this subject sufficient attention. The dentist would have far less to do if children were better instructed and cared for in this particular. Even from an esthetic sense it should receive more consideration, regardless of the great amount of pain, annoyance, and disfigurement which follow neglect and carelessness in the systematic care of the teeth.

Cleanliness

A few simple principles will give the key to the situation: First, the prevention of overcrowding. This must be attended to by a competent dental surgeon. Second, the avoidance of chemical and mechanical injury to the teeth and gums. This involves such injuries as are caused by the forcible introduction between the teeth of foreign substances, like seeds, bits of bone, bristles, toothpicks, etc. Third, the careful and frequent cleansing of all exposed surfaces of the teeth, and the use of such harmless antiseptics as will prevent the long continuance of pathogenic germs in the mouth.

Principles of Preservation

The most easily available means of protection lies in the proper cleansing of the teeth. For this purpose the ordinary bristle tooth-brush, in which the bristles are not too closely placed together, thus admitting of their passage between the teeth, is the most practical instrument. Care should be taken lest the bristles spread, and the brush should be discarded before it is soft or ragged from long use. A narrow bristle is preferable, the handle bent in the direction of the tuft on the brush, so as to admit more easily reaching the curved surfaces of the teeth.

Tooth-brush and Brushing

Brushing should be practised after each meal and before going to bed, and once daily should be accompanied by the use of a tooth-powder sufficiently coarse to produce some grinding and polishing effect. Powdered chalk and orris root are common bases for tooth-powder. Some harmless antiseptic, such as oil of wintergreen or tincture of myrrh, should be incorporated with the powder to help destroy any colonies of germs that may be reached. Of equal importance is the use of soft silk twine, known as dental floss. It should be drawn between the teeth firmly but carefully, so as to remove foreign matter that can not be reached in other ways; but it is important not to cut or irritate the gums nor loosen their attachments to the teeth.

Tooth-powder

In addition to these methods the mouth and teeth should be carefully rinsed every night with some innocuous antiseptic solution. Some of the most harmless antiseptics are powerful germicides. Tincture orris, rose-water, and alcohol equal parts, flavored with a drop of oil of bitter almond, makes a very agreeable mouth wash, and it may be rendered more actively antiseptic by the addition of five-tenths per cent of formalin. Ordinary listerin is good; but what I recommend almost exclusively now is "formolid," a standard preparation, which is not only very agreeable and clean to the taste, but is a strong antiseptic and germicide.

Mouth Wash

Further, it is a good plan, once or twice a week, with the assistance of a little tooth-powder, to rub carefully all exposed surfaces of the teeth with a narrow chisel-like piece of wood that is hard and fine grained, such as orange wood, so as to smooth away all roughness and inequalities. This puts a smooth polish on the teeth and renders their subsequent cleansing by means of the tooth-brush a comparatively simple matter.

EATING HASTILY

A GREAT train of evils follows that great mistake which, in this age of hurry, so many are making,—eating too fast. It is not the small matter that it may seem. Even under the most favorable conditions, with the best of teeth, rapid mastication can not properly divide and break up the food particles and effect a due admixture of the salivary secretion.

Under these conditions, when a crude mass of inadequately crushed and undivided solid material of any description is passed into the stomach, much harm results; and, unfortunately, a man may live under an affliction of hurried dinners, and endure the consequent loss of health, for years without knowing why he is not well or how easily the cause of his illness might be remedied. Lumps of food taken into the stomach act as mechanical irritants and set up a condition in the delicate lining membrane of the stomach which greatly impairs if not altogether prevents the process of digestion.

I have many times removed from a patient's stomach by lavage large particles of food that had remained in that unbroken condition five hours and more after eating, causing the patient much distress, headache, nausea, and even vomiting.

Another evil is very liable to accompany rapid eating, *i. e.*, overeating. Not only is the patient *inclined* to overeat, but, inasmuch as he does not digest and assimilate his food properly, nature fallaciously seems to require a much larger quantity of food than would be necessary under natural conditions, and thus the stomach is dilated, stretched, slips down in the abdomen, does not empty itself properly, produces a poor quality of digestive fluid, becomes inactive, and the whole system suffers from a lack of nourishment.

THE USE OF FRUIT

THERE are many forms of dyspepsia which are accompanied with a large number of germs in the stomach and intestines. These germs are at least in part the cause of the trouble. They produce fermentation, gas, sour stomach, and the poisons which are so readily absorbed by the system and cause the languid feelings, indisposition, nervousness, sleeplessness, irritability, and headache. It is imperative, in order to overcome these distressing symptoms, that the cause be removed, that the digestive tract be rid of these germs. As long as they remain where they are, even the best of ordinary foods will only add fuel to the fire, because these germs enjoy good food of a certain class just as much as they do unwholesome food.

Many artificial methods have been devised and tried for accomplishing this wholesale cleansing of the digestive organs. Years ago strong medicines were administered to purge the individual and thus wash out the intestines by throwing out into them a large amount of fluid from the blood, a system of bleeding into the intestines. But since the evil of this wholesale purging has been recognized and the method largely discarded, many have sought to obtain the result by a much more hygienic, if not more agreeable, method. Consequently, the stomach tube was greatly in demand, and the stomach thor-

oughly washed out again and again with large quantities of warm water. The intestines were treated in much the same way per rectum, by the internal bath and large colon clysters and flushings. Sometimes fasting has been resorted to in the hope that the germs would be starved out.

Now while some of these methods have proven beneficial in certain cases, we have a simple, rational, and natural way of ridding the stomach of its offenders and leaving it sweet and clean, and at the same time stimulating the normal functions of the stomach and the secretion of digestive juices. This is accomplished by means of the *fruit diet*, which, if properly adapted, will be found serviceable in nearly every case, and the drastic purges and disagreeable stomach and rectal tubes and the weakening fasts can be largely dispensed with.

Any ripe fruits may be used, and it is better if they are fresh, because the fresh fruits are more actively germicidal than are cooked fruits. However, there is no objection to the use of well-cooked fruits provided they are unsweetened. Even olives and bananas may be used, although they have no marked germicidal action. When the diet consists exclusively of fruit, it is better to eat four or five meals a day, and the individual may eat as much as he desires. This is a mild starvation diet, and should not be continued long, not more than from two days to a week. Should one feel weak, a little granose or zwieback may be taken with the fruit twice a day. I have often advised a fruit breakfast as a permanent habit, and the results have been very gratifying in a large number of cases.

THE NEWEST "QUICK LUNCH"

THE worker who frequents any of the million and one lunch rooms of Greater New York, having time to look as well as to lunch, must remark the number of business people who now call for bread and milk, and make their lunch of these. Young and old, men and women, fat and thin, seem to be adopting this simple and wholesome diet for the midday collation, when there is little time to spare. The restaurants are now prepared to furnish bowls instead of goblets. The waitress no longer looks at the customer in astonishment if "a bowl of milk" is ordered. Occasionally the order is "a small bowl of cream" or "cream and milk mixed, please."

No butter is served with the bread, as this last is broken into the liquid after the manner of our forefathers. The bread order is varied. Sometimes "home-made" bread, either wheat or graham, is asked for. Or it may be rasp-roll, milk biscuit, or Vienna twist. Sweet buns or cake are never called for.

This frugal fare is the recoil of the human stomach from the greasy dishes served in so many of the so-called cheap restaurants, and from the dyspepsia which unfailingly results.

A difference is noticeable in the quality of the milk served by many of these restaurants since the bread-and-milk demand began. The grade is greatly improved; for when a lunch consists of one dish, that dish must be of first quality. The bluey liquid served not so long ago as milk, and the skim milk recently called cream, would cause a serious loss of patronage if served by the popular restaurants this season.—*What to Eat.*

SUGGESTIONS FROM THE SANITARIUM COOKING SCHOOL

(These recipes were prepared by H. L. Spencer, *chef* of the Vegetarian Cafe, 755 Market St., San Francisco.)

MENU NUMBER ELEVEN

Tomato and Okra Soup
Mock Chicken Salad **Tomato Chops** **Pecan Sausage**
Potato Fingers **Asparagus Stew with Protose Balls**
Prune Souffle **Strawberry Granose**

Tomato and Okra Soup.—Take one quart of okra thinly sliced and two quarts of sliced tomatoes. Simmer gently from one to two hours. Put through a fine sieve to remove all seeds; heat again to boiling, season with a small lump of butter, two heaping tablespoonfuls of finely-minced parsley, and salt to taste.

Mock Chicken Salad.—Take one-half pound of nuttolene and cut in small pieces. Prepare and mince one quart of crisp celery. Mix well together, season with salt, garnish with lettuce, and serve with mayonnaise dressing.

Tomato Chops.—Measure three-quarters of a cup of canned tomatoes after the liquid has been drained off. Put in a saucepan over the fire and stir into it a cupful of mashed potatoes, half a cup of grated bread crumbs, and salt to taste. Mix thoroughly and add one egg beaten light, also piece of butter size of an egg. Remove from the fire, turn into a plate, and let it get cool. Then form into the shape of chops about half an inch thick. Dip in egg and roll in bread crumbs. Put on oiled tins and bake in hot oven until brown. Serve with tomato sauce made by putting tomatoes through a sieve and thicken with a little flour. Season with salt and some finely-minced parsley.

Pecan Sausage.—Two heaping tablespoonfuls of pecans rolled fine, two tablespoonfuls of toasted and rolled bread crumbs, two hard-boiled eggs, one tablespoonful of nut butter, one-half cup of boiling water. Pour the water over the bread crumbs and let stand while mashing the eggs. Then mix with them the nut butter and pecan meal, and last the bread mixture. Season with salt to taste, and powdered herbs if desired. Mix well and form into little cakes and brown in a spider with olive oil or in an oven on an oiled pan. Serve with pecan gravy made as follows:—

Take one cup of water, one heaping tablespoonful of pecan meal, one heaping tablespoonful of white flour, and a little salt. Dissolve the meal in boiling hot water, then salt and stir in the flour after it has been rubbed smooth in a little cold water.

Potato Fingers.—Soften some mashed potatoes with a little milk, add salt and a little thyme, a handful of bread crumbs, and a small onion grated, with one egg to bind. Roll into fingers; dip into egg and bread crumbs. Place on an oiled tin and brown in a quick oven. These form a nice garnishing for any dish, and are very good when eaten alone.

Asparagus Stew with Protose Balls.—Scrape and wash the amount of as-

paragus wished; cut in pieces about a half inch long as far as the stalks are tender. Cover with boiling water and cook until tender; season with salt. Melt a tablespoonful of butter in a sauce-pan, and when it bubbles add a tablespoonful of flour, and brown together. Drain the water from the asparagus when it is done and use in making the gravy (which should be when done as thick as good cream), and then pour over the asparagus. While the asparagus is cooking make some balls by using one-fourth of a pound of potatoes and two eggs seasoned with salt and thickened with granose flakes so that it can be formed into balls about the size of a walnut. Bake until brown, put in a dish, and pour the stew over them, and serve at once.

Prune Souffle.—Soak three-quarters of a pound of prunes overnight in water enough to cover them. Cook until soft in the water they were soaked in. Drain, take out the stones, and press through a puree sieve. Add half a cup of granulated sugar, and the whites of three eggs beaten to a stiff froth. Bake in a pudding dish twenty minutes. Serve in the dish in which it was baked, cold, with cream.

Strawberry Granose.—Sweeten and mash the berries the same as for shortcake. Put a layer of granose flakes in a pudding dish, then a layer of the berries, and so on until the dish is full, finishing with berries. Prepare about an hour before serving. If it seems too dry, put an extra spoonful of berries on each order.

"THERE is religion in good cooking."

SOME NUT FOOD DISHES

Almond Rice Pudding.—Take one cup of rice (the long grains are best), wash and put into agate pan upon the stove with three cups of water; let stand until thoroughly swelled, or until water is all taken up, then add one tablespoonful of almond butter, diluted in one quart of water (adding water gradually), one tablespoonful of flour mixed with five tablespoonfuls of sugar, four or five drops each of vanilla and lemon, mix together and pour over rice. Put into baking dish and bake until cream is thickened, but not curdled.

Almond Cream Pie.—Take one large tablespoonful of almond butter (not heaping), mix with a little water until smooth, add pint of water, beat two eggs (whites and yolks separately), one-half teacup of sugar, one teaspoonful of flour mixed in the sugar, pinch of salt, teaspoonful of vanilla and lemon extract; mix all together. This filling for large pie. To make the crust take one teacup of flour to two tablespoonfuls of olive-oil and a pinch of salt; mix through the flour well. Add enough water to hold together, but do not mix or stir.

MRS. S. H. COLVIN.

IN putting up fruit, do not make the mistake of using an inferior quality or canning it in order "to save it." Always select fresh fruits, that are firm and in good condition; stale fruits are apt to become sour and cause fermentation. Large fruits, such as peaches and pears, are in the best condition to can when not quite fully ripe, and should be put up as soon as possible after picking.

"RICH and complicated mixtures of food are health-destroying."

CONDUCTED BY
A. J. SANDERSON, M. D.
SUPERINTENDENT
ST. HELENA SANITARIUM

QUERY DEPARTMENT

WE CORDIALLY INVITE QUERIES FOR THIS DEPT. ON ANY SUBJECT GERMANE TO HEALTH

What is the cause of heartburn? and how can it be avoided?

Heartburn is a burning sensation in the stomach. It is called heartburn because of its proximity to this organ and because pain is felt in this region. Its usual cause is an increased acidity of the stomach, irritating the sensitive mucous membrane. It may be an overproduction of normal acid, or it may be the formation of acids by fermentive changes in the stomach contents. When it is due to the latter, the symptom is felt some length of time after meals. It will be avoided in the first class of cases by not using any stimulants, condiments, or anything that will overstimulate the glands of the stomach. Acid fruit should not be taken. Easily-digested foods and those which combine readily with the acid are those which help reduce the intense acidity. Raw or only slightly cooked eggs will usually be found helpful. In some of these cases the free use of cream will be an advantage.

Heartburn that arises as a result of fermentation of food will be best avoided by taking pains not to use the foods which ferment easily. Sugar and pastries should never be taken, and what starchy foods are taken should be thoroughly cooked or dextrinized. Most of these cases are helped materially by making use of a dry diet.

Is it well to drink hot water regularly several times a day?

Only where there is some condition of the stomach or system that would be benefited by it. Hot foods and hot drinks are not naturally required, and, like the continuous application of heat to the outside of the body, their continuous use has a weakening tendency. However, when the eliminative organs are not acting freely, and when there is a great deal of fermentation in the alimentary canal, the taking of a large quantity of water will be found of great advantage. It is one of the very best means of cleansing the digestive organs and increasing the elimination. In many of these cases it will be found of great service when taken three times a day from one to two hours before meals. It should be continued as long as benefit is derived, but it should not become a fixed habit unless the conditions require it.

How many meals is it best for the ordinary individual to take daily?

As many as best serve the requirements of good and permanent nutrition. The needs of the body should establish the practise rather than habit. In different parts of the world we find people who are accustomed to eating all the way from one to six meals a day, and the number of meals has become largely a matter of habit. The American people usually take three meals a day, but most of them eat to excess.

The system becomes surcharged with surplus material, and the digestive organs become worn out by doing extra work, and thus the foundation for dis-

ease is laid. The average individual will receive abundant nutritive material for the support of the system by taking two ordinary meals a day. This practise, if carefully maintained, gives the very best condition for keeping the digestive organs in the most healthy state, as they have sufficient periods of rest, and the glandular activities do not become exhausted and impoverished.

Is the one-meal-a-day system ever a good practise?

It is, provided the system is well nourished. As a rule, people who live upon one meal a day do not show such results, but are usually poorly nourished. It is a mistake to think that the digestive organs can do better service when their work is minimized to less than the actual requirements of the system. It is never wise to give the stomach continuously any less work to do than that which will best serve the nutritive functions as a whole. The man who does half the work that he is naturally fitted to do will only be half as strong and consequently have only half the resistance against disease. This is just as true of the separate organs of the body as it is of the individual.

Is there any objection to drinking a small quantity of water or other liquid at meals?

It does not do any material harm to the person who has an ordinary rapid absorption and motility to the stomach. The average individual, however, especially where there is any tendency whatever to slow digestion or retention of the fluid in the stomach, would better not take any surplus fluid at all with the meals, because the stomach is not able to handle more than is necessarily secreted in the ordinary production of gastric juice. Another evil that comes with the drinking of fluid at meals is the fact that the individual eats too rapidly when taking the fluid, and instead of having the food masticated and softened by the natural secretions of the mouth and stomach, their place is supplanted by the other fluids taken, which have no digestive power whatever.

How much water should a person drink in twenty-four hours?

A quart of water would be the minimum amount for the average individual. Many people would do well to take more than this quantity. As a rule, people do not drink enough. It is true that the system adapts itself to this small quantity of fluid by the economy with which it uses and reuses the water, as it goes from the blood to the secretive organs and is returned to the blood again. This economy of the system is, however, not the most healthful. The elimination becomes imperfect. The excretion through the kidneys becomes minimized in quantity and surcharged with solids, which often lay the foundation for trouble. People would do well to drink much more of the purest water that can be obtained.

Are mineral waters good for the system?

Not as a rule; especially the alkaline have a deleterious effect upon the natural secretions of the alimentary canal. Recent physiologists have pointed out the influence that alkaline waters have upon the physiological action of the ferment in the pancreatic fluid. Digestion is often materially and permanently interfered with by the use of these waters.

ASSOCIATION NOTES

PACIFIC HEALTH JOURNAL IS PUBLISHED UNDER THE AUSPICES OF THE CALIFORNIA MEDICAL MISSIONARY AND BENEVOLENT ASS'N

RECENT DEVELOPMENTS AT THE SANITARIUM

ST. HELENA, CAL.

THE present season in the Napa Valley is an especially pleasant one. The hills spanning to the north and south from the foot of mountains Howell and St. Helena, with the valley checked with green fields of grain and flourishing orchards and vineyards, was never more beautiful than under the influence of the recent rains and sunny, invigorating climate.

The hillside about the Sanitarium is not slow to take on the same robe of beauty. In fact, the cultivation of recent years has so increased the growth of the oaks and other summer shrubbery that their heavy foliage, mingled with that of the live oaks and fir, with the various openings here and there to make way for the gardens and isles of sunlight, strengthen the old and oft-repeated testimony which was anciently borne concerning Mt. Zion,—"beautiful for situation."

The Sanitarium being so favorably surrounded by the beautiful handiwork of nature, so naturally formed without hands, is no less progressive in its inner equipments and arrangements in providing for the health, comfort, and welfare of its guests; the paths along the hillside are being graded to meet the requirements of those who have heretofore been prevented from taking exercise because they were unable to climb the hills.

Free out-of-door life and physical exercise in harmony with the strength of the body, are acknowledged to be very important factors in the treatment of chronic invalids, and nowhere are these facilities more harmoniously arranged for than o'er the hill and vale in our immediate neighborhood.

Everywhere the varied change of near and distant scene lends enchantment and encouragement to the mind that has the least inclination to forget itself, and thus adds greatly to the physical benefit to be derived from the more material remedies.

The recent improvements within the buildings have been no less marked than that on the grounds around. Most prominent among these has been the installation of an electric-light plant which furnishes light for the buildings and surrounding gardens, and provides power for other purposes. This plant has now been installed about three months, and has been giving perfect service. Its advantages add greatly to the comfort and welfare of the guests, as well as providing favorable facilities for the better administration of various features of the medical work. The electric-light baths are among the new furnishings in the bath rooms. These are the large reclining cabinets, where the electric-light and radiant-heat bath can be given even to feeble and delicate patients with comfort. In this way this class of patients are enabled to obtain the milder effects of this most beneficial form of eliminative and stimulating treatment.

Other similar improvements in the treatment departments have greatly increased their efficiency in administering to the needs of the sick. The natural methods for curing the sick, which have been the distinguished features of our institution from the start, are thus being rendered much more efficient by these improved facilities and methods.

SACRAMENTO TREATMENT ROOMS

SANITARIUM nurses who have been working in Sacramento for several years have found so many patrons who were desirous of having treatment that a recent attempt has been made to equip bath-room compartments. These have now been in running order for some months, and some of the graduated nurses of the Sanitarium have been giving treatment during this time. The rooms are located at 719½ K Street. Departments are fitted up for both ladies and gentlemen, each one having three rooms, where the electric-light bath and the electric bath and various forms of electricity and massage can be given to the best advantage. The rooms are very neatly furnished, and the facilities are new and inviting. Many of our Sacramento patrons have enjoyed the luxuries of the treatment that has already been given, and the people of the city are favored with having permanently-established treatment rooms where Sanitarium methods can be effectively employed.

EUREKA SANITARIUM

DURING the past six months the medical work in Eureka has had a steady growth. The location has once been moved in order to secure larger facilities, and these are now crowded to the utmost, with a prospect of moving into larger quarters again.

This branch of the St. Helena Sanitarium has been equipped with good bath-room facilities in the limited accommodations for the care of the patients in the house. Much of the work that has been done has given very fruitful results, which is an encouragement to the workers who have gone there from St. Helena. The Sanitarium is receiving the hearty support of the people of the city, who are offering inducements for its enlargement.

THE LOS ANGELES SANITARIUM

THE Los Angeles Sanitarium has been open a little more than a year. It is located very near the central part of the city. The work has had not only a rapid but stable growth. During the last few months the institution has been able to accommodate only a small percentage of the applicants for admission. A chemical and bacteriological laboratory has recently been established in connection with the Sanitarium. This will add much to the accuracy of the work done in the institution.

The Vegetarian Restaurant department is in a flourishing condition. Five hundred to seven hundred meals are served daily. A strictly hygienic menu

is adhered to, and many patrons testify to much physical improvement while living upon this kind of diet. A finer and more intellectual class of men and women could not be found at any restaurant or hotel in the city.

The bakery department was opened about four months ago. This has been a very successful feature from the beginning. The demand in the city for Los Angeles Sanitarium bread is much greater than the present facilities for baking will supply. There is a demand for a bakery of many times the present capacity for work.

To perform the work of the institution requires over forty employees. The great need is more room and larger facilities for doing work. There is an urgent demand for a much larger institution.

VEGETARIANISM IN SAN FRANCISCO

VEGETARIAN dietetics did not take its honored place at the table of San Francisco's populace until a few years ago, when two events brought about the "consummation devoutly to be wished." One was the establishment of a regular vegetarian restaurant on the main thoroughfare of the big cosmopolitan city; the other, an aggressive crusade against impure and adulterated foods, especially meat and milk.

The Vegetarian Restaurant at 1422 Market Street, San Francisco, opened up as a protest against the wholesale consumption of animal food, to the intense satisfaction of the small band of vegetarian advocates, who had long been leading a desultory warfare in the cause of food reform.

The Vegetarian was something new to the people; not only had it the gloss of novelty for its recommendation, but it possessed the scrupulous cleanliness which makes a strong impression on the higher stratum of restaurant patrons. Its display of health foods attracted the marked attention of thousands, and many who had been taught to believe that nothing could come out of vegetarianism, came, ate, and became convinced to the contrary. Artistic cooking made nut foods a delightful substitute for flesh, and the legumes, vegetables, salads, and other foods served, broke down the barriers of ignorance and prejudice set up against a dietary of fruits, grains, nuts, and vegetables.

To facilitate the growing public demand for vegetarian foods, the Vegetarian was removed to 755 Market Street, and is known as the Vegetarian Café. It now occupies a floor space of 10x60 feet, entirely inadequate for the congested patronage of the restaurant. It is proposed in the near future to move to more commodious quarters. About five hundred meals are served daily, and a regular staff of sixteen employees minister to the wants of a crowding public.

THE SAN FRANCISCO BRANCH

DURING the last few months the work in the treatment rooms in San Francisco has steadily increased. At present six nurses are kept busy giving treatments, which are much appreciated by the many patrons who are unable to go to St. Helena and avail themselves of a complete rest, a vacation from business and home.

MOUNT VIEW SANITARIUM

THIS is the name of one of the younger members of the Sanitarium family, recently started in Spokane, Wash. For several years a large number of Sanitarium supporters have wished for an institution of the kind in Spokane, recognizing that the patronage of this city alone would support a fair-sized institution.

Spokane is the supply center for the great northwest, and is made accessible to a large territory by about a dozen railroads. The wisdom of its professional men, as well as the merchandise of its manufacturers, is sought by residents within a radius of two or three hundred miles, thus constituting the city an important commercial center. The building occupied as the Sanitarium is admirably suited for such an institution, containing, as it does, large rooms, together with spacious halls, and verandas and balconies commanding a view of the country for fifty miles around.

The work was started in a small way and on a conservative basis. However, by devoting more than ordinary time and care to each individual patient, the results obtained were such as to surprise even the most sanguine. As it was in the days of old, "straightway those benefited published it throughout all the region round about." From a beginning of a physician and one nurse, the enterprise has grown until to-day three physicians and thirty nurses are kept unusually busy. The house is kept constantly filled, and many patients are turned away for lack of accommodation.

Substantial encouragement has been offered by the citizens towards the erection of a still more convenient and spacious building, and with this hope realized the institution bids fair to become one of the well-recognized philanthropic institutions of the northwest.

THE PORTLAND SANITARIUM

IN July, 1900, an association was organized at Portland for the purpose of relieving the sick and destitute, uplifting humanity, and carrying forward a work of education concerning the proper care of the body in health and disease.

Although begun on a small scale, the needs have been so great in this center that the work has rapidly increased and spread out, so that at present besides the main sanitarium at Portland, a health-food factory has been established, a vegetarian restaurant in Seattle, Wash., and branch treatment rooms at Tacoma and Seattle, Wash.; and every branch of the work is prospering.

SANITARIUM TRAINING SCHOOL

THE annual commencement exercises of the Sanitarium Training School were held in the Sanitarium chapel Thursday evening, May 30. An appropriate program was prepared, and addresses by the different members of the faculty were listened to. There were ten young ladies who successfully completed the course of study and received their certificates.

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IT has been gratifying to notice the favorable reception which has been accorded the HEALTH JOURNAL since its enlargement and the improvement in its appearance. Since the first of the year, when these alterations were made, there has been an increase in the subscriptions to the JOURNAL of over 3,500, and from this marked increase we are led to believe that the efforts which have been made to make the PACIFIC HEALTH JOURNAL the best and most inexpensive journal of its class, have been duly appreciated. Every effort is being made to place the JOURNAL in the front ranks of popular health magazines. The best authorities are enlisted in preparing interesting and instructive articles on subjects germane to every-day health and hygiene. Especial effort is made to make these articles practical, and to eliminate as far as possible all technical terms and discussions, so that they may be readily understood by every one.

The educational feature of the JOURNAL is one of the most prominent. Besides a goodly number of timely articles and selections each month, the JOURNAL contains a Cooking School, in which many valuable hygienic recipes are to be found each month, with suggestions regarding the preparation of health foods and foods for the sick; a Query Department, in which Dr. Sanderson, the medical superintendent of St. Helena Sanitarium, answers all questions of general interest that are directed to this department; a Department of Practical Hints, in which an endeavor is made to offer practical suggestions of every-day consequence.

We would like to call especial attention to the premium books which we are offering with the HEALTH JOURNAL. Those found on the advertising page headed "A Bill of Fare" will be found of paramount importance to every one, and we have placed the clubbing price on these books and pamphlets so extremely low that we hope many of our readers will avail themselves of this low rate.

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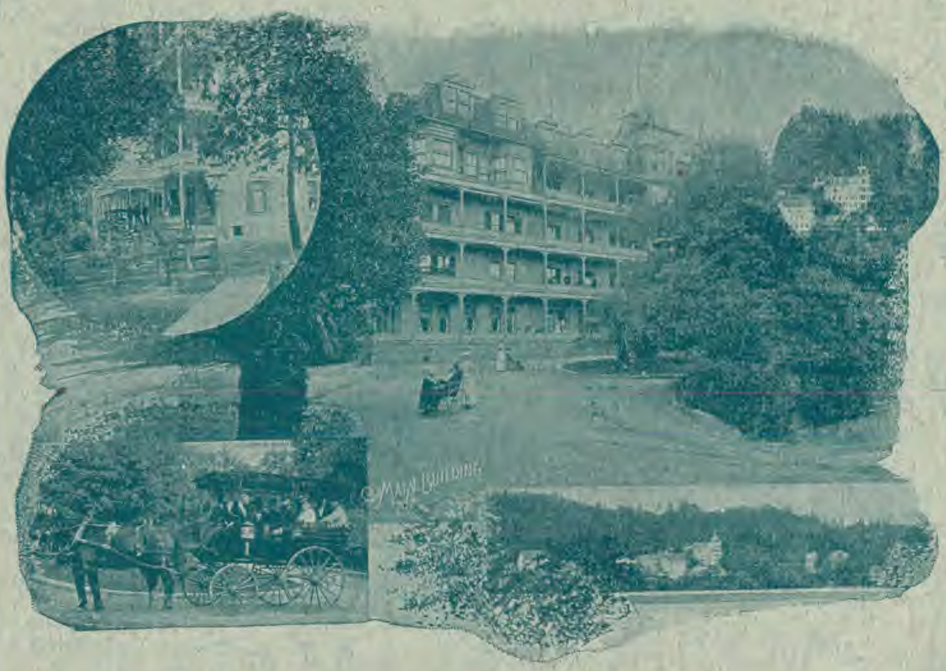

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