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Life & Health

VITALITY

Vitality is the measure of the life forces. It is defined as one's ability to endure or continue. If you are full of vitality, you can think clearly and work efficiently; you are equal to the tasks before you.

Not only that, but your vitality measures your ability to ward off disease. Just as a weak, unprepared nation is unable to defend itself against invasion, so, if our vitality is at a low ebb, we cannot resist the great enemy of mankind — disease.

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A vigorous, healthy body is your greatest asset in life. The soul efficiency, the door of opportunity, the corner-stone of success, is vitality.

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Life & Health

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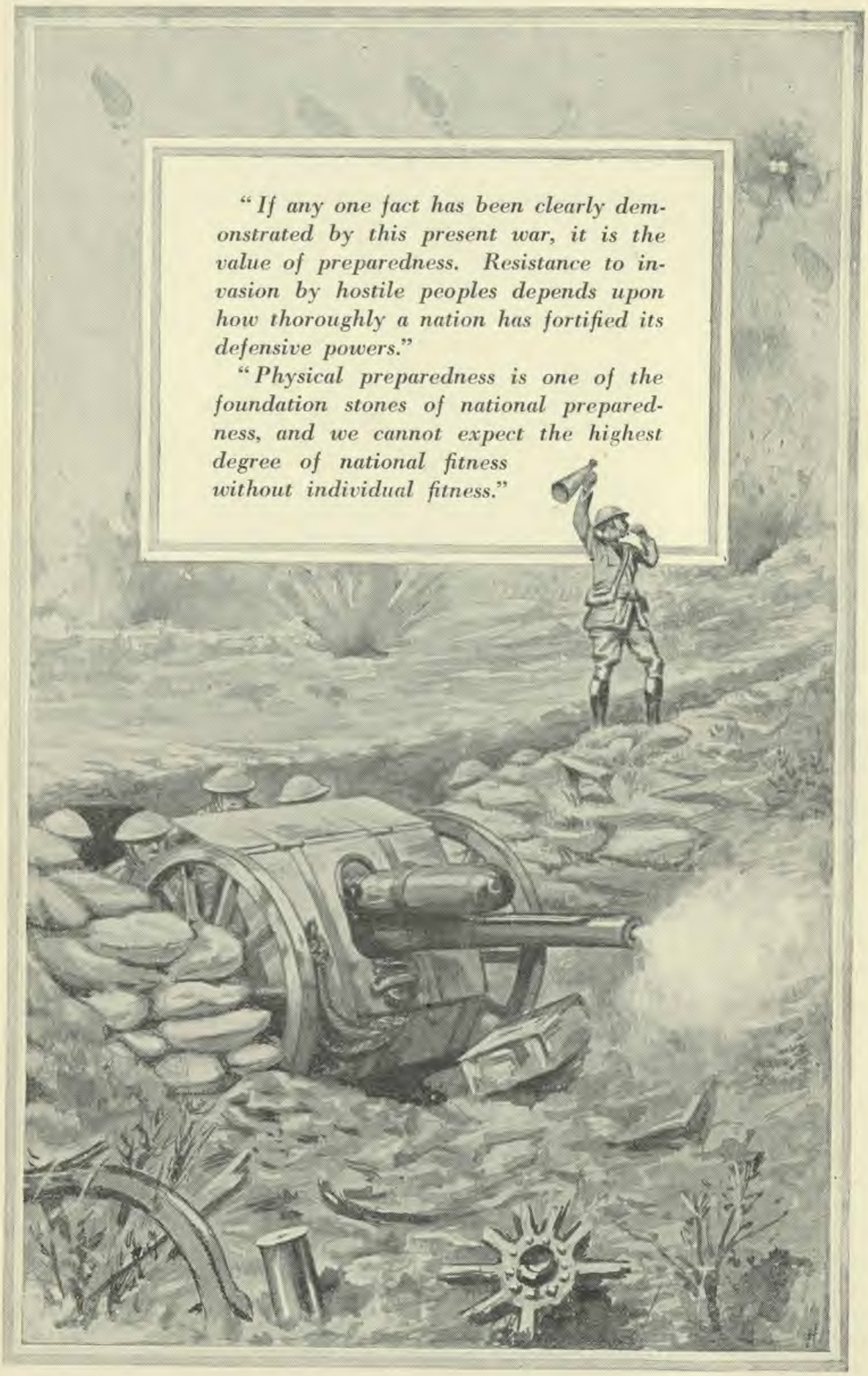
"If any one fact has been clearly demonstrated by this present war, it is the value of preparedness. Resistance to invasion by hostile peoples depends upon how thoroughly a nation has fortified its defensive powers."
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Life & Health

HOW TO LIVE

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Resistance to Disease

or Physical Preparedness

R. A. Crawford, M. D.

Superintendent Chamberlain (S. Dak.) Sanitarium and Hospital

IF any one fact has been clearly demonstrated by this present war, it is the value of preparedness. Resistance to invasion by hostile peoples depends upon how thoroughly a nation has fortified its defensive powers. Preparedness on the part of England and France might have saved hundreds of thousands of lives and hundreds of millions of dollars, and what effect it would have had on the results of the present world war we may never know. The fact that the United States is so far from the field of action is probably the one circumstance that has kept us from realizing the worst of the dire results of unpreparedness.

But there is another matter which demands our earnest attention, because it has a vital bearing upon the inward life of the nation, and because it is really a part of the question of national preparedness. I refer to the matter of our individual reserve powers, the possession or lack of which will determine whether or not we shall be able to combat disease successfully. Physical preparedness is one of the foundation stones of national preparedness, and we cannot expect the highest degree of national fitness without individual fitness.

In order to demonstrate this fact, and to show that the principles involved in both cases are the same, I wish to make a comparison between a great nation and a human being. We conceive of a nation as a single unit — a great animated being, that thinks and works harmoniously in all its parts; and by reason of this central direction and the specialization of certain parts of the nation for particular functions, it is powerful and can accomplish wonderful results. It is like a gigantic individual who can determine upon a course of action, and then set his ponderous weight and strength to its accomplishment. Like the individual, the nation has a brain, represented by its central government. It has arteries — the railroads and other great avenues of transportation, by which food and articles of necessity can be transferred from one part of the nation to another, and by which waste products may be removed. It has nerves — the telegraph and telephone systems, by which every part is kept in almost instantaneous touch with every other

part. It has ears to hear, eyes to see, and hands to work. And it has provided means of defense.

A nation, then, is a single unit, a great, powerful, living entity. And yet it is composed of millions of individuals, each of whom is capable of thinking and acting by himself.

Did you ever stop to think that a human being, although a single complete whole, is also composed of millions of separate living particles, each of which has its particular work to do, and some of which are capable of moving by themselves? Every drop of blood contains millions of individual living cells, which are as perfectly formed and as much alike as the individuals which make up a nation. Every tissue and organ of the body is similarly composed of these minute living units, which are especially adapted to their particular work. And the body also is provided with its own means of defense — a standing army, if you plase.

Some nations have highly developed defensive powers, while with others these powers are very weak. And this is just as true of human beings. As a weak nation is a prey to almost any ambitious invader, while a scientifically prepared nation may withstand the forces of practically the entire world, so some individuals fall easy victims to almost every disease that comes along, while others seem practically immune to every infection. In the case of the individual, as with the nation, it is a matter of the strength or weakness of the powers of defense.

You may want to know just what kind of warfare we are to engage in, which requires a physical preparedness. I will tell you — it is the warfare against disease. From the cradle to the grave, life is one constant warfare against disease. Disease germs are everywhere. We cannot expect to avoid them, but we should be able to resist them. This we may accomplish by strengthening the defensive powers of the body.

"We cannot be efficient if we are in poor health."

If a nation is to be in a proper state of preparedness, it must take up the matter seriously, as our country is doing at the present time. It means a great deal of hard work and thought, and much sacrifice. First, the brain of the government must be clear. In other words, the central power must be so organized that it can act promptly and efficiently. Then its circulation must be good. I mean by this that its facilities must be so under control that men and supplies can be furnished to all portions of the defensive machinery at once as needed. Of course there is to be considered the question of the production of food and supplies, and of the elimination of waste. The government must, moreover, be assured that the quality of food and supplies is the very best. There is also the problem of proper training and the matter of sanitation to be handled. All this takes patient, continuous effort.

These conditions are just as essential in the individual's preparedness to resist disease. If we are to make ourselves physically fit, we shall have to apply ourselves to securing fitness in a vigorous, systematic manner. If it is important

that men for an army be constantly drilled and exercised, it is equally important that the living cells of our own muscles receive a sufficient amount of healthful, invigorating exercise. Only in this way can we expect them to become good, strong muscle cells, capable of doing the special work assigned to them.

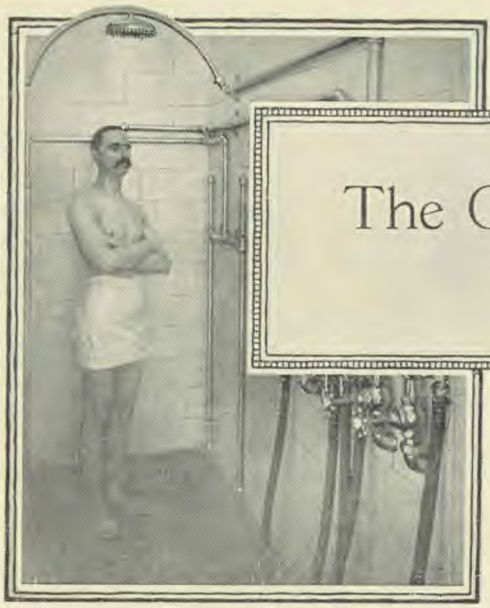
It is just as important that we supply the cells of our body with wholesome nutrition as it is that the nation supply the men at the front with the best food to be had. But this will be impossible if by indulging our appetite we weaken our digestive organs so that they are not able to prepare the food properly for assimilation into the body. A weakened digestive system only partially digests the food, and thus many toxic products may be absorbed into the body, which will impair the efficiency of every organ.

Fresh air, proper exercise, good food, proper rest and recreation, and temperance in all things, are essential if we are to place ourselves in a physical condition which will enable us to ward off disease. This may require a certain amount of sacrifice. We shall have to desist from the indulgence of appetite. It may be necessary to get out earlier in the morning, in order to take a walk before going to the office. It means that we shall have to take ourselves thoroughly in hand, and discipline ourselves to form right habits. But it is well worth the effort.

This is a strenuous age, an age when efficiency counts more than it has ever counted before. We cannot be efficient if we are in poor health. Now, if ever, the world needs real men and women, who have clear, active minds, healthy bodies, and strong moral characters. It needs men and women with good red corpuscles running in their veins, who can be depended upon in time of crisis.

It has been said that it is a crime to be sick. While that is not exactly true, it is a fact that a large share of sickness could be prevented if we would adopt the principles of physical preparedness

"FROM THE CRADLE TO THE GRAVE, LIFE IS ONE CONSTANT WARFARE AGAINST DISEASE"



" The cold bath should be faithfully taken daily, and persisted in until the body becomes accustomed to it."

The Cold-Bath Habit

J. W. Hopkins, M. D.
Washington (D. C.) Sanitarium

IF the cold bath has not become a part of the daily program, it should be begun before the extreme cold weather sets in. The cold bath should be faithfully taken daily, and persisted in until the body becomes accustomed to it. The importance of this is mentioned by John Wesley in his book, " Primitive Physic," written many years ago. He says:

" Cold bathing is a great advantage to health. It prevents abundance of diseases, it promotes perspiration, helps the circulation of the blood, and prevents the danger of catching cold. Tender persons should pour water upon the head before they go in, and walk swiftly. To jump in with the head foremost, is too great a shock to nature."

In speaking of the care of children, he says: " To prevent the rickets, tenderness, and weakness, dip them [the children] in cold water every morning, at least until they are nine months old. . . . Their drink should be water. Milk, milk porridge, and proper gruel are the proper breakfasts for children."

Wesley was right about the value of cold-water bathing. The skin is a keyboard upon which can be played various tunes, the music being drawn from the different organs of the body. The nerves coming from the spinal cord and brain, are distributed in pairs, one nerve of the pair going to some vital organ and the other going to an external part. If, then, we apply hot or cold water to the surface corresponding to the internal organ, the same change will take place in this organ as in the skin. In this manner various diseases of the stomach, liver, and intestines may be treated;. pneumonia and other diseases of the chest can often be controlled by external applications.

The skin also registers many of the mental conditions. This is evidenced by the frown which appears on the face, by the smile which comes when one is happy, by the goose flesh and shiver when one is cold, and by the paleness of the skin when one is frightened. There is therefore an intimate relation between the skin and the various organs of the body, including the brain.

The effects of cold bathing depend on —

1. The temperature of the water. This should be chosen according to the age and condition of the patient.

2. The length of time occupied in taking the treatment. If the patient is weak and delicate, the bath should be of a mild temperature and should occupy but a short time.

3. The condition of the patient. A strong, vigorous person can take much colder applications and will react better than the weak patient.

4. The amount of surface covered by the application, or the organ which is affected by it, determines the effects received. A plunge bath is much more vigorous than is a sponge bath given first to one part of the body and then to

another. Cold affusion to the chest increases the rate of breathing, while the same application given to the feet increases the circulation in them.

5. The vigor with which the application is given determines the results in many cases. A douche or spray, a cold-towel rub, or a cold-mitten friction produces more marked reaction than does a milder measure, as a sponge bath. The impression received by the application may be severe or mild, according to the method of application. For this reason a delicate person should take the cold bath very moderately at first. The room should be warm. A cold-air bath is for some persons fully as vigorous as a cold-water bath for others. Some patients will be able to take the cold bath if they stand with their feet in a tub of hot water. This increases the blood supply to the feet, warming them, and helping to bring about a general reaction. A good way to begin is to sponge an arm or a leg with tepid, cool, or cold water, and dry the part thoroughly before going to the next part of the body. If these precautions are taken, even the weakest patient will be benefited by a daily bath, and the general health will be improved. Patience and perseverance are needed in following out these treatments.

Other results which follow the cold bath, and which come from systematic training in this manner, are:

1. Increased appetite. The patient desires more food, eats with a greater relish, and digests his food better. The motor power of the stomach and bowels is increased, and the quality of the gastric juice is improved, more hydrochloric acid and digestive ferments being secreted. If the bathing is carried on for a sufficient number of months, this effect upon the muscles and glands of the stomach and intestines becomes permanent. Lowered muscular tone of the stomach and bowels, which results in prolapse of these organs, is relieved, the muscles become stronger, and the relaxed condition disappears. This is one of the best measures to relieve constipation and intestinal indigestion. The torpid liver is stimulated by short cold applications to it, or by alternate hot and cold applications in the form of fomentations, cool compresses, or the alternate hot and cool spray.

2. The action of the cold bath upon the circulation is also very important; the heart is slowed, the force of its beat is increased, the blood pressure is raised, and the circulation in the skin and other organs is greatly improved.

3. The blood-making organs also partake of the increased activity, more blood cells being formed, and the number of white cells and red cells in the circulation being increased. This adds to the power of resistance of the body against disease. The white blood cells, or phagocytes, are among the most active of the body defenses in destroying germs and removing foreign substances from the blood.

4. In diabetes, rheumatism, fever, etc., the normal reaction of the blood, which is alkaline, becomes changed, and the blood becomes slightly acid. The short cold bath restores the alkalinity of the blood, helping in oxidizing, or burning up, many of the waste matters.

5. Expansion of the chest is increased, bringing more oxygen into the lungs, from which it is absorbed into the blood and carried to the tissues. This oxidation is of great importance in maintaining the body heat, and in removing the various waste materials which

are formed in the body or taken in with the food.

Nothing is better calculated to improve the tissue metabolism and increase the amount of oxygen taken into the blood and tissues, than short cold baths taken daily for several months. Cold bathing increases the activity of the kidneys, causing an excretion of more liquids, and of more solids as well.

With the person of sedentary occupation, the nervous system is liable to be more or less unstable; hence the benefit derived from the cold bath. In no other part of the body is there seen greater improvement than in the restoration of the nervous system to the normal by the daily cold bath. It relieves fatigue, and restores the body to a healthy, rested condition.

The proper time for taking the cold bath is in the morning, upon arising, and it should be followed by some light muscular exercise to aid in securing reaction. The habit of cold bathing should be followed by every person, and if patiently and persistently adhered to, will produce gratifying results.

Health and $ $ $

L. A. Hansen

THE value of health cannot be stated in terms of finance. While questions of profit and loss, resources and liabilities, and many matters in general, may depend very much upon whether one is sick or well, the real value of health cannot be shown by so many figures with $ before them. The individual with not a dollar to his credit in the bank, but with a full stock of health, can justly feel himself far wealthier than the man who, though rich in stocks and bonds, is poor in health.

Health is a treasure of incomparable value. It is the most precious of all temporal possessions. No other thing can take its place. No possession can substitute it. Without it all else loses value.

Laying up dollars at the sacrifice of health is a costly way of getting rich in one thing and poor in another. Anything that is purchased at the cost of health costs too much. That is really living beyond one's means. The exchange of health for any other commodity is a transaction that drops a man's present worth below par. It means insolvency of his greatest asset.

Particularly is it true of a man or woman who must work for a living, that health is capital. The man with a snug fortune in hand and a good bank account, or an estate that will keep him, may feel fairly comfortable in mind, even if he does not have the best of health; but the man who has nothing laid up must depend wholly upon his ability to make a living, to keep himself and his family. He is unfitted for this in proportion as he lacks in health.

Poor health means poor earning ability, loss of efficiency, loss of time, loss of wages, and in consequence, loss

of ability to purchase the necessities and comforts of life. It means suffering, and pain, and doctors' bills. It means the loss of the joy and happiness of living.

Statistics show that, on the average, nine days a year are lost to the worker through ill health. Besides these days of total loss of earning ability there may be counted the decreased earning capacity of the man who is partly disabled some of the time, and consequently can earn only a partial wage. Thus the economic loss through ill health is a big one. Again, it is stated that in the United States there are probably at all times about 3,000,000 persons seriously ill. This means an average of thirteen days of sickness per annum for each inhabitant.

Health is a capital that may be squandered. Burning the candle at both ends will soon consume it; using one's capital faster than it is replenished, will eventually exhaust it. The faster a man lives, the faster will he use up his capital of health. He may get in debt healthwise, and, we may say, bankrupt, for he may get so far behind that he is never able to catch up and square the account.

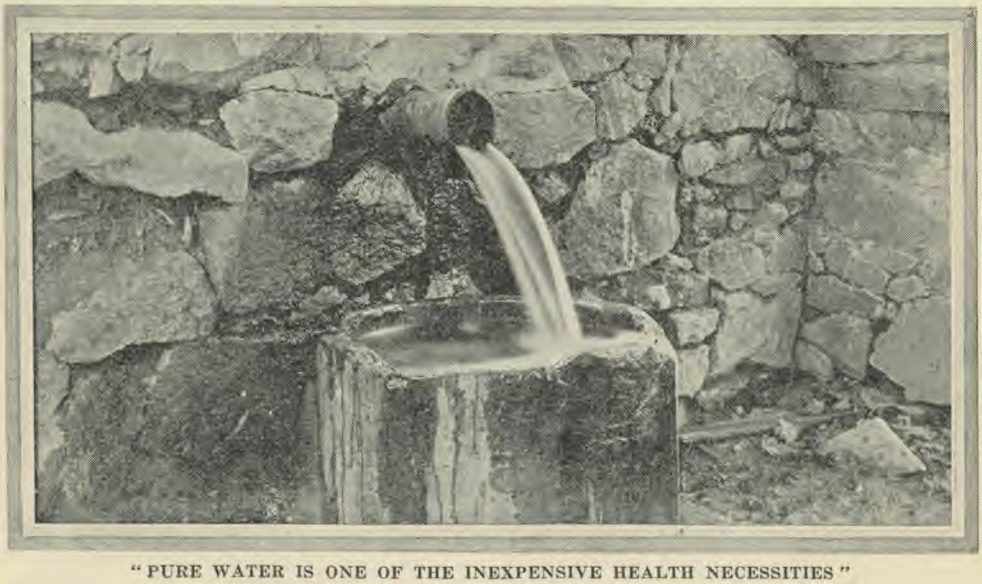
The stock of health may be kept up. Disease is not inevitable. Men are not obliged to be sick. Invalidism is not necessarily a part of our program. It is being demonstrated that disease of almost every kind is avoidable.

Financially speaking, the cost of healthful living is comparatively low. The high cost of living applies mostly to high living which is not the best living. The most of health's necessities are not affected by the rising scale of prices. Some of the essentials to health will probably never be subject to market fluctuations.

Fortunately the food problem has angles which are more or less exempt from speculative trading and price boosting. The best of living is found to be simple living, and simple living is economical living. In the main, the foods best suited for the simple diet are those least affected by the abnormally high prices.

A paramount factor of health is good cooking. The most wholesome preparation of foods is generally the cheapest way of cooking. Education on this point is not costly. Plenty of information is available, and at little expense. Intelligent application and sincere devotion to the cause of good cooking will bring big returns in health.

An essential to health is pure air. As yet we do not have to breathe through meters. Air does not cost so much per cubic foot. Generally speaking, it is



"PURE WATER IS ONE OF THE INEXPENSIVE HEALTH NECESSITIES"

available in unlimited quantities to most people. Even those of the crowded tenement districts may secure enough to live on. It happens, too, that nearly every person is provided with a human mechanism for utilizing fresh air for the maintenance of health. The trouble with many is that the pure air is shut off from the living-room by poor ventilation, and by some it is further shut off from the lungs by improper breathing.

Poor health means poor earning capacity, loss of efficiency, loss of time, loss of wages.

Pure water is one of the inexpensive health necessities. Up-to-date sanitation recognizes the importance of a pure water supply; almost every city makes provision accordingly. The country dweller can usually secure good water. Questionable water can be made safe for drinking purposes by the average housewife at very little expense.

Exercise is another factor of health, and one that does not necessarily carry a price tag. One of the best forms of exercise is walking, and as yet walking is free. The program can be varied by many other forms of exercise, and with no increase in the high cost of living.

Proper clothing is not more expensive than the other kind. If anything, good clothing, simple and neat, is cheaper than that which meets fashion's demands instead of the needs of health. It is certainly true that the plainer sort of girls' dresses is a saving in time, strength, and money over the kind that is more elaborate but not more serviceable. Anyway, good clothing, the really good, is cheaper in the end.

An important element in health building is sleep. The average day allows plenty of time for recuperative sleep, and it is unwise to crowd other things into the sleeping time. The pleasure seeker who keeps late hours dissipates in robbing himself of needed sleep. The well-meaning student burning the midnight oil draws upon his physical vigor, and thus pays an exorbitant tuition for his education. The would-be man of thrift who crowds the night hours with labor is a loser rather than a gainer.

Recreation of the most wholesome kind may be had on a low-cost basis. A little planning and simple preparations will go far toward providing it in a way that will be truly upbuilding in health.

Fortunately, the millions of dollars spent annually for patent medicines do not necessarily enter into the real cost of health. It is a wholly needless expenditure. The nation's health would be better without these nostrums, and the money paid for them is worse than wasted. Many a person would be able to buy health necessities were it not for this useless outlay.

Another reduction in the health bill may be scored on doctors' bills, not by way of securing a discount on them, but by cutting down the necessity of making them. The instruction of medical science on how to get well and how to stay well is voluminous. Following the physician's good advice on how to be well is a lot cheaper than hiring him to keep doctoring you.

A clear conscience is essential to sound health, and a rich Christian experience is one of the freest things in the world. Rational health principles are embodied in rational religion. The Author of true religion is the giver of good health. The terms of obtaining health are based on obedience to health laws.

The means of obtaining health are not vested in dollars and cents. Health is not subject to market changes. It cannot be cornered. In the main, it is within the reach of every one willing to have it. The aforementioned essentials to

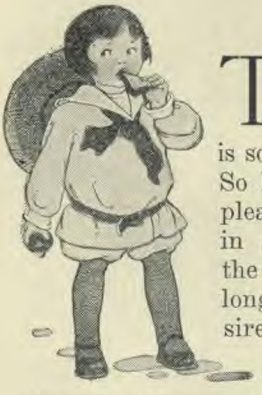
good health are largely available to most people. A kind Providence has so arranged that the vital element of health shall not be subject to prohibitive conditions or terms.

Health may be cultivated more cheaply than illness. On the whole, the principal cost of obtaining health is the effort of the individual to yield obedience to natural laws, giving up hurtful practices, and living by principle. Studying to obtain a knowledge of health principles is a part of the bill for best living. Putting these principles into practice costs less than not to do so, and insures good health in the bargain.

Chasing dollars does not bring the returns that come from the pursuit of health. With too many the question of dollars and cents comes first in importance, and health is sacrificed in consequence. A halt in the mad financial rush long enough to give calm consideration to what is really worth while, will turn more people into health seekers, and thus give a wealth that is far beyond anything that can be valued by the dollar sign.

Do We Eat Right?

G. H. Heald, M. D.



TO the average person the subject of dietetics is something of a bore. So long as the food is pleasing and is served in sufficient quantity, the custom is to eat as long as there is any desire for food, and then give it no further thought. There is a general impression, perhaps pretty well founded, that one who is overcautious regarding his eating, and is constantly measuring and studying the various articles of diet, and watching the sensations and symptoms that follow each meal, is abnormal, and is pretty certain sooner or later to become a confirmed dyspeptic. The neurasthenic may delve in proteins and carbohydrates, and grams and calories, but what does a red-blooded American have to do with such things? Give him plenty of good food, and leave the science of dietetics to the diet crank and the laboratory man.

Such is about the mental reaction when the average normal person is told that he should eat, say, 70 grams of protein, with sufficient fat and carbohydrate to make up 2,500 to 3,000 calories. "Leave that to the laboratory man and the doctor, and give me my three square meals, and I'll trust my appetite to guide me." So the problem of how much and what to eat is left to the ancient monitor, the *sense of satiety or fulness*, and the figures are left for the dietitian to dispose of.

That the sense of satiety is *not* a safe guide, however, may be inferred from the statement of Dr. Eugene Lyman Fisk, director of the Life Extension Institute, whose life-insurance experience has made him an authority in regard to the causes that contribute to the shortening of life. Dr. Fisk is quoted as saying that a man of thirty-five who is under the average weight has a better chance for long life than one who weighs more. That is, at thirty-five a man of average weight is shortening his life. He weighs just a little more than is good for him. That extra weight means extra intake. In other words, the average person of thirty-five has eaten or drunk enough more than he ought, to shorten his life!

Is that a startling statement? It was the life-insurance statistics covering

many thousands of lives that demonstrated beyond controversy that the light-weight man (not the emaciated man) lives longer than the average, that enabled Dr. Fisk to make the statement he did. Such statistics indicate beyond all possibility of quibble that the *sense of satiety*, on which the average person depends to tell him when he has had enough, is not reliable. It might be, were it not for the desserts and sweets and titbits brought on to tempt the appetite further after the meal proper has been finished.

One rule which some have followed with excellent results is to make it a practice always to leave the table a little hungry. Some, like Luigi Cornaro, have limited themselves to a certain definite amount. Many who have lived far beyond the average span of life have been spare eaters. This is the rule rather than the exception. The man with excellent digestion and an overwhelming appetite that seems never quite satisfied, the man of portly proportions who is known as a "good liver," may lead an active and useful life for a few years; but during his forties or fifties he is liable to have a *bad liver*, and to contract heart or kidney trouble which may quickly relegate him to the scrap heap. "A lean horse for a long pull." The writer is not saying this on his own authority; any insurance actuary will bear out the statement. One's appetite, then, is not a safe guide as to how much one should eat.

On the other hand, there may be in many cases a real danger of undernutrition, as when a child hurries to school in the morning with little or no breakfast, snatches a hasty lunch, and depends for his main food supply on the supper which may be none too ample, and may be poorly balanced and lacking in essential ingredients. Or a person working at low wages may board himself or herself, buying sparingly and perhaps not wisely. Or the increase in the size of the family without a corresponding increase in the income of the wage earner, may cause an attempt at economy in food which means undernourishment for some of the family. Often the sum spent for food would be sufficient to purchase adequate nutrition if it were wisely expended. If appetite or instinct were a correct guide, every one should know what and how much to buy. But it does not work out that way in real life. The foods supplied to many tables, though fairly liberal in quantity, are poorly balanced, and lacking in some elements essential to health and well-being.

The evidence of physiological laboratories shows that man's illnesses, acute and chronic, are much more often due to faulty nutrition than was formerly supposed. When one is nourished just right, he will almost surely be healthy; and when his nourishment is faulty, it will certainly be manifest in some disorder.

To come back to where we started, What constitutes adequate nutrition? and how can the matter of nutrition be made so simple that the common people can understand and make use of it?

Bonnie (3½ years, 40 pounds) and Bobbie Shrewsbury (2½ years, 35 pounds), whose parents for years before marriage were total abstainers from flesh and from all stimulants, including tea and coffee. The boys have never been ill to speak of.

So many attempts have been made to solve this problem, so many tables showing food values have been published, that it seems presumptuous to attempt another, but we are hazarding a new arrangement in the hope that it may help to make the matter easier to some of our readers. The figures in this table are adapted from tables by Mary Swartz Rose ("Feeding the Family," and "Laboratory Manual of Dietetics") and by Prof. Irving Fisher (article in *Journal A. M. A.*, April 20, 1907).

The various foods have been divided into "portions" of 100 calories each. To make a 3,000-calorie ration it would be necessary to select 30 portions or their equivalent, divided, say, into 10 portions for each meal, or 8 portions each for two light meals and 14 portions for the principal meal. Of some of the foods, such as cabbage, one would naturally take only a half or a third of a portion; of some other foods, more than one portion.

In the first column are given food classes, with certain characteristics common to the class. These characteristics will serve as a guide in the formation of combinations of food. For instance, in order to obtain material for building body proteins, it is necessary to supplement the proteins of seeds with other proteins. The proteins of the cereals and the legumes partly supplement each other, but milk in addition to either or both of the seed classes furnishes material for the complete protein nutrition of the body. In a measure the green vegetables will do the same thing; but for children the milk protein is preferable. The protein of eggs also supplements the protein of seeds. Meat proteins do not complete the seed proteins so well as milk.

Another important requisite of the body, especially during growth, is the fat soluble unknown (or "vitamine") which is present in very small quantity in seeds, and not at all in cereals deprived of their germ and bran. In order to obtain this dietary requisite, there should be in the diet a liberal quantity of green food or of milk products.

Another essential is to have the ash slightly alkaline. A combination of white bread and meat, both having an acid ash, is unwise, not only from the lack of the fat soluble growth determinant, but also because of the acid ash. For both reasons a combination of meat and potato would be better. Better still are combinations of the cereals or legumes, or both, with milk products or greens.

In the second column are given certain simple ready-to-eat foods. No attempt has been made to give figures for mixed dishes, as the composition of these might vary within wide limits. Even with the simple dishes the figures can be only approximate, depending on how much water has been used in cooking (which would increase the number of ounces necessary to make a portion), and on how much fat is added (which, while increasing the calories, would lessen the proportion of protein).

In the third column are given common measures, which are only approximations of 100-calorie portions, but which may serve to gauge the quantity of one's intake sufficiently close for all practical purposes. In the next column is given the number of ounces in a 100-calorie portion. If one has learned just about how much an ounce is, he can make a fair estimate of quantities from this column.

The last column gives the number of protein calories in a 100-calorie portion.

Now a few words regarding the amount of protein necessary for adequate nourishment. According to the Voit standard, there should be for the average individual 120 grams protein; that is, sufficient to furnish 480 protein calories. A more moderate estimate places it in the neighborhood of 400 protein calories. It would take a pretty heavy meat diet to furnish that much. The figures we have accepted for this article, certainly a safe one, place the requirement at 300 protein calories. Chittenden places it at 250 protein calories or less, and Hindhede, who with his family lived in health on 120 protein calories or less, maintains that one can live healthfully on a diet

CLASS AND CHARACTERISTICS	Food	Common measure	Ozs.	Protein calories
CEREALS Are lacking in the fat soluble growth determinant, or "vitamine," especially when the germ and bran are removed. The protein is incomplete; may be partly supplemented by that of legumes, and completely so by milk. Ash is acid, and poor in lime and common salt.	Bread, wheat	3 small slices	1.4	14
	Bread, corn		1.4	12
	Cornmeal, cooked	⅔ cup	6.0	10
	Oatmeal, cooked	1 cup	8.0	17
	Rice, steamed	¾ cup	4.0	9
	Hominy grits	4/5 cup	6.8	9
	Macaroni, etc.	1 cup	5.2	15
	Corn flakes	1¼ cups	1.0	6
	Puffed rice	1⅓ cups	1.0	9
	Popped corn	1½ cups	0.6	11
LEGUMES Are lacking in the fat soluble growth determinant. The protein is incomplete; may be partly supplemented by cereal proteins, fully so by milk proteins. Ash is alkaline.	Beans, stewed	½ cup	4.9	26
	Lentils, stewed	½ cup scant	3.0	24
	Peas		....	....
FRESH VEGETABLES (SEEDS)	Sweet corn	½ cup	3.5	12
	Green peas	½ cup	3.5	28
	String beans	1 cup	8.5	22
FRESH VEGETABLES (GREENS) Rich in salts. Valuable for iron and fat soluble growth determinant. Protein supplements those of seeds. Ash is alkaline.	Cabbage	5 cups shredded	11.2	20
	Spinach, boiled	2½ cups	21.0	12
	Lettuce	2 large heads	18.5	25
FRESH VEGETABLES (ROOTS) Ash is alkaline; and in character is between leaves and seeds.	Potato, w., baked	1 medium potato	3.0	11
	Potato, w., boiled	1 medium potato	3.6	11
	Potato, w., mashed	½ cup, scant	3.1	7
	Potato, sw., baked	½ medium potato	3.0	6
	Beets	1⅓ cups, sliced	7.7	14
	Carrots		10.0	10
	Parsnips		5.8	10
	Turnips		9.0	13
FRUITS Salts, abundant. Ash, alkaline.	Apple, fresh	1 large	7.5	3
	Apple, sauce	3/8 cup	3.5	1
	Banana	1 banana	3.6	5
	Blackberries	½ cup	6.1	9
	Blackberries, stewed	¼ cup	2.2	2
	Dates, unstoned	3 or 4 dates	1.1	2
	Figs, dried	1½ large figs	1.1	5
	Grapes, Concord	1 large bunch	4.9	5
	Peaches, fresh	3 medium peaches	10.5	6
	Pears, fresh	2 medium pears	6.3	4
	Olives, ripe	6 to 8 olives	1.7	3
NUTS Ash, alkaline (peanut, acid).	Almond meats oily	12 to 15	0.5	13
	Brazil " oily	2	0.5	10
	Chestnut " stchy.	7	0.9	10
	Peanut " oily	20 to 24	0.6	19
	Pecan " oily	12	0.5	5
	Walnut " oily	8 to 16	0.5	11
DAIRY Proteins complete and make up fully the lack in proteins of vegetable origin. Especially rich in fat soluble growth determinant. Milk or even whey rich in salts with alkaline ash. Valuable to counteract the acid ash of cereals (meat and eggs). Rich in lime, but lacking in iron.	Whole milk	½ glass	5.0	19
	Skim milk	Full glass	9.6	38
	Buttermilk	Glass rim full	10.0	34
	Full cream, 40%	1⅓ tsp.	0.9	2
	Whey	1½ glass	13.0	15
	Cottage cheese	1 serving	3.2	76
	Store cheese	1⅛ serving cube	0.8	26

EGGS				
Proteins complete. Supplement those of vegetable origin. Rich in fat soluble growth determinant. Ash, acid, resembles that of meat. Lacks lime.	Whole egg	1⅓ eggs	2.7	36
	Yolk	2 yolks	1.0	17
	White	7 whites	6.9	97
FATS	Cottonseed oil, Olive oil, etc., Cottolene		0.4	....
	Butter		0.5	½
SWEETS	Sugar		0.9	....
	Honey		1.1	0.5
	Pie (average)		1.5	6.0
FLESH	Beef, lean loin		2.0	40
Fat soluble determinant only fair. Proteins help to make up deficiency of grains, but not entirely so. Ash, acid.	Fowl, edible portion		1.6	35
	Herring, edible portion		2.5	55

of potato and margarine. Potato alone would give for 30 portions (3,000 calories) 30 x 11, or 330, protein calories. But when Hindhede ate part margarine (which contains no protein) and less than thirty portions of potato, he was able to reduce his protein intake to a minimum. Most people would suppose that with potato one should eat some highly nitrogenous or protein food. Hindhede maintained and proved the opposite, namely, that he could thrive on potato together with another food containing *no* protein, thus his ration would contain a smaller proportion of protein than the potato affords.

One will see, by looking over the table, that it is not easy to pick out a combination of 30 portions that will not yield 300 protein calories. One could by using fruits, sweet potatoes, etc., do so, but picking at random one would get an average of at least 10 protein calories per portion. The point, then, is to see that the proteins are properly distributed, cereals with legumes, or either or both with milk. The proteins of the green foods supplement those of the seeds. These facts will show why a monotonous diet palls on the appetite. It is not merely a matter of taste, it is a matter of insufficient nutrition.

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Some Details of the Sammies' Preparation

No. 1. The Brooklyn Y. M. C. A. boys practicing artificial respiration by means of an apparatus which first empties the lungs, and then injects gently a measured amount of oxygen. This apparatus is useful in case of asphyxiation or suffocation from any cause, provided the patient is not beyond recovery.

No. 2. The Central Branch of the Brooklyn Y. M. C. A. boys practicing the carrying of wounded on their drill grounds,— the

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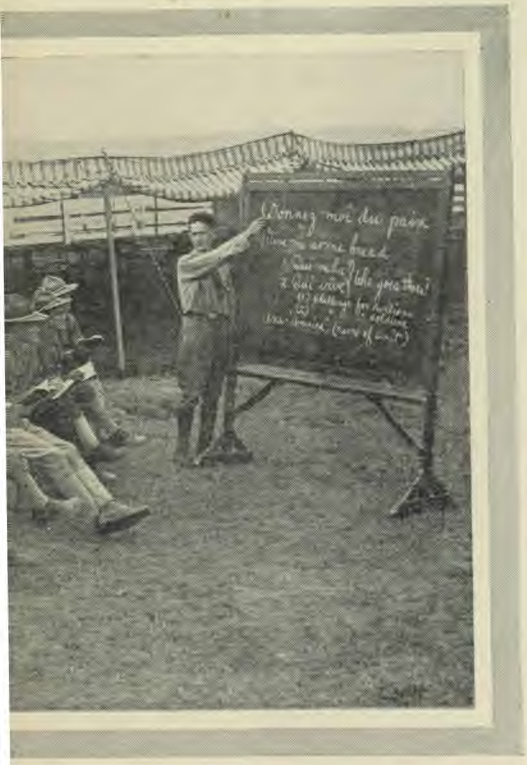
NO. 2



roof of their building. These young men have had full instruction in all that pertains to base hospital work. Each one is fitted to take charge of a Red Cross squad.

No. 3. Some soldier boys encamped on the historic Gettysburg battle ground, learning to speak enough French to be able to make their ordinary wants known. The sentence "*Donnez-moi du pain*" (Give me some bread) is particularly significant just now, when France, owing to the impossibility of importing sufficient wheat, is experiencing a veritable bread famine.

EDITORIAL

The Body's Fortifications

NATURE abounds in those elements that tend to the construction, nourishment, and well-being of our bodies. However, there are some elements and environments that exert a weakening influence, and hinder natural functions, the knowledge of which becomes a safeguard to those who carefully avoid these snares.

The world is rich in vegetation,— lofty trees, beautiful plants, and fragrant flowers, all of which afford very pleasant, harmonious, and desirable surroundings for humanity. But scattered in the midst of our luxurious flora are certain poisonous plants and deadly herbs, the presence of which causes us to hesitate to venture farther.

In like manner there is a great variety of animals, the majority of which contribute to the happiness, service, and pleasure of man, the masterpiece of creation; and yet there are in the midst of the great world-wide animal creation, listed among vegetables, among animals, and among creeping things, certain dangerous, venomous, harmful creatures, which attack man by overpowering him, by superiority of strength or by deadly venom or by their cunning, and destroy life.

Perhaps still more dangerous to humanity are the invisible elements, as bacteria. These number tens of thousands, each with its millions of varieties, and thousands of them are extremely useful. Manufacturers depend upon them; agriculturists are forced to admit the necessity of utilizing germs for soil fertility and development; and physicians have often obtained some of their most marked results by employing bacteria for medicinal purposes. However, there are some forty or fifty varieties that have proved to be a great menace to humanity, and though small, they are capable of tremendous activity. Their poisons are produced in minute quantities, yet they have such tremendous virulence as almost immediately to paralyze and cause the vital functions of the body to cease within a few hours' time from their admittance into the circulation.

Thus we might continue to enumerate the harmless and the harmful elements, always finding that the harmless and needful and useful things in nature are far in excess of the destructive elements. Still, in the end it will be found that the forces at work to cripple, hinder, deplete, and destroy the energies of human beings, are in sufficient abundance to result in the disintegration of all animal as well as vegetable life in the course of a few years or a century; and were it not for certain inherent resources with which our bodies are endowed, which enable man to fight and combat these destructive elements, we should succumb at a much earlier period.

Cold would soon lower the body temperature to a degree that would stop all tissue changes, and would so modify the body functions that life would cease in the cells of our bodies, were it not that the body possesses the ability to manufacture heat from its tissues, and at the same time, by a closure of the pores

of the skin, to limit the penetration of cold into the tissues. Alcoholic beverages, however, paralyze the muscles that have to do with controlling the contraction of the surface tissues against cold, so that the blood is exposed and chilled. This is why alcoholics so readily freeze to death.

When poison is taken into the stomach, the cells of the stomach quickly recognize its virulent character, and send impulses to the brain, resulting in a forcible contraction of the muscles of the stomach, which expels its contents. Many a life has thus been saved. In case the poison has passed down into the bowels, they at once set to work to secrete a fluid which dilutes the poison. This, of course, renders more fluid the contents of the bowel, and allows it more readily to pass through the intestine, and sooner gain exit from the body. All along through the entire intestinal tract are certain cells which secrete a slimy substance, known as mucus, which is drawn out by the presence of any irritant, and acts as a varnish over the cells lining the intestinal tract, which saves the destruction of these cells.

If the poisonous bacteria should finally gain entrance into the circulation, there again in the living tissue of every life we have cells known as white corpuscles, the function of which is to destroy germs either by ingesting them or by producing and throwing out a substance which is poisonous to a germ, rendering it inert, and safeguarding the vital tissue of the body,— the blood.

Even the anatomical construction of the body is such as to offset blows, to withstand falls and injuries. The locations of the vital organs are most carefully safeguarded by a protective covering, and the deep arteries and veins are secluded most carefully from ordinary injuries.

Thus we find in the human body the most perfect defensive mechanism anywhere to be found in nature. It possesses the greatest degree of utilization, having the greatest percentage of conservation of energy and in every respect the ideal in mechanism — certainly a machine worthy of the most careful scrutiny and the greatest care. When it possesses the full and complete coöperation of the intellect, which it supports by the exercise of self-control, the inhibition of harmful practices, and strict respect to nature's laws, it possesses unsurpassed opportunity of development, and is capable of a far better record in longevity than the race at present can boast.

Harry W. Miller

When Is a Protein Not a Protein?

G. H. Heald, M. D.

FOR years physiologists have taught that the essential elements of food are proteins, fats, and carbohydrates, with a certain amount of mineral salts. The problem in dietetics was to get a sufficiency of each of these, the standard usually accepted requiring something like four ounces of protein with sufficient carbohydrate and fat to make up 2,800 or 3,000 calories up to 6,000 or more, according to weight and occupation.

Later it was shown that one can maintain health upon a much smaller quantity of protein (two ounces or less), provided there is sufficient other food to furnish the required calories. But notwithstanding this showing, the tendency has been to set the protein requirement at considerably more than three ounces, and perhaps most physiologists today would contend for a diet containing at least three ounces of protein, a considerable portion of which should come from animal sources.

Within recent years there has been a vast amount of experimentation and research, showing, among other things, that there are many kinds of protein. Some proteins are complete, others incomplete. The protein molecule is very complex, and consists of various combinations of amino acids, of which eighteen are known. Some proteins contain all eighteen of the amino acids, others are lacking in one or more. During digestion the proteins are broken up into these component amino acids, which are absorbed into the blood current. From these amino acids the body builds up its own proteins. But if certain of the amino acids are not present, it cannot make the proteins it requires.

We may illustrate with block letters. If we have the word P R I N T in blocks, and with them attempt to make the word P R O T E I N, we find the E and O missing, and we can only make P R T I N. If we have another word, P O E M, in blocks, we can with the O E complete our word P R O T E I N. If we suppose each letter to represent an amino acid, we have an illustration of the fact that with an incomplete protein it is impossible to build up a complete protein, and also of the fact that one incomplete protein may supplement another, the two together forming a complete protein. It may readily be surmised that it must take more of the incomplete proteins to satisfy the body's need than of complete proteins.

There has been a very general opinion that proteins of plant origin are inferior to those of animal origin. Is there any basis for this supposition?

Careful experimental work with a large number of laboratory animals (white rats, guinea pigs, etc.) and larger animals, in which each experiment was

repeated a sufficient number of times to make certain of the uniformity of the results, have shown that as a rule, vegetable proteins are incomplete; that cereals and seeds are deficient in one particular; that peas, beans, and legumes generally are deficient in another particular, and so on. If to the protein of the grains we add casein, one of the proteins of milk, we furnish a complete protein ration. But the experimenters "were not able to make combinations of the seeds of plants in any way which formed a ration capable of inducing normal growth in the rat, and an extended experience has all tended to confirm our belief that this is true for swine and for other mammals as well." [1] Pigeons, and possibly also chickens, seem to do well, however, on such a dietary. With the oat, gelatin was found to make a much better combination than casein. But if with the seed of a plant the leaf also is eaten, or at least some form of leaf food, nutrition is maintained. Animals did well when fed cereal combined with alfalfa meal or flour.

The pea and bean are rich in protein, but it is protein of a poor quality. As McCollum says, "The proteins of the pea or bean, when taken as the sole source of nitrogen, are of very low biologic value, and they will not supplement the protein of corn, though they improve the protein of wheat. Bean proteins will not supplement those of the oat, though pea proteins and oat proteins supplement each other." Evidently the proteins of the pea and the bean are not similar. The foregoing is partly an explanation of the following statement on page 26 of the "Ten Lessons on Food Conservation" issued by the United States Food Administration for use in connection with the food conservation campaign:

"Cereals do not help each other out because their 'building stones' do not supplement each other.

"Legumes (peas, peanuts, and beans) do not help each other for the very same reason.

"Most legumes, combined with cereals, make a more nearly efficient protein combination.

"Gelatin supplements the lack of some of the 'building stones' in most of the cereals, but it does not help out the lack in the legumes.

"The combination of any of these with milk or cheese or meat or eggs is efficient.

"The diet of the American people should be so selected that the average for men, women, and children is at least 70 grams (about two and one-half ounces) of protein a day. One fourth to one third of this may come from cereal foods, one seventh may come from milk and its products, one seventh to two sevenths from animal proteins, the remainder to be secured from a wise combination of vegetables and fruits."

For several reasons milk is the best form of the animal proteins. It is the cheapest, it most nearly supplies all the elements needed in the body; it is for the child the building-up food *par excellence*.

But be certain that it is clean milk. There is scarcely anything so bad as bad milk.

[1] McCollum, *Journal A. M. A.*, May 12, 1917.

AS WE SEE IT

ECLAMPSIA RARE ON WAR DIET

As reported in the *Journal A. M. A.*, March 3, 1917, an abstract in a Danish publication states that statistics from the three largest maternities in Berlin show a remarkable falling off since the beginning of the war in the prevalence of eclampsia, or convulsions, in maternity cases.

The physicians ascribe this great reduction, down to one fourth the former rate in one hospital and to one third in another, to the limited diet imposed. In cases where there was eclampsia it was mild and brief, "practically abortive." In the one severe case, the woman's husband, being a diabetic, had secured large amounts of meat and butter, which the wife had probably shared. "The conclusion seems inevitable," the writer tells us, "that restriction of fat and meat tends to ward off eclampsia."

G. H. H.

IS RAPID DIGESTION ALWAYS ADVANTAGEOUS?

We have been so accustomed to judge of a food's value by the rapidity of its digestion in the stomach that we have overlooked one important fact.

It is generally known that the use of milk tends to lessen protein decomposition in the intestine, with its consequent autointoxication. For a long time this was attributed to the lactic acid present, or to the lactic-acid germs. But this explanation has not stood the test of time, and now it is generally conceded that milk owes its antiseptic quality to the presence of milk sugar, which is very slowly transformed into absorbable sugar, and which consequently is carried far down the intestinal tract, furnishing food for a type of germs which hold in check the injurious putrefactive germs. The virtue of the milk sugar lies in the fact that it is slowly absorbed.

Foods whose carbohydrates are completely turned to sugar cannot act to prevent intestinal toxemia. For this reason, dextrinized foods and all predigested foods are at a disadvantage. Carbohydrate foods which are only partially digested in the stomach are thus probably of distinct advantage as antiseptics. This may explain why there is some virtue in the use of raw cereals.

Some one has recently shown that stale bread is not so rapidly digested in the stomach as fresh bread. The protein seems to form an insoluble sheath around the starch which retards digestion. This may be one reason why stale bread is, on the whole, a more wholesome bread than fresh bread. More of its starch reaches the intestines to act as food for the "friendly" germs.

At any rate, the custom of taking the carbohydrates largely in the form of absorbable sugars (candies, fruits, etc.) is not calculated to inhibit the action of the putrefactive germs which form toxic compounds from the proteins. One who has a tendency to intestinal autointoxication should of course use less protein, especially animal protein. He should also take his carbohydrates in a form that is slowly absorbable. Try some raw wheat, for instance, well masticated, or some flaked oats. The results should be good both as to bowel movements and the limitation of toxic action. G. H. H.

ARE WE TO BE WITHOUT MILK?

Purchasing a pound of butter in the Center Market, I handed out fifty cents, and received two pennies in exchange. It was the time of year when butter should be at its lowest. I remarked to the salesman:

"We used to expect butter to come down to twenty-five cents in summer. We don't now." "No," said he, "it will never sell for that price again." "I

should not be surprised," I said, "to see it reach a dollar." "It will very likely reach a dollar," he replied. "Some years ago, before prices had gone up, there was a man in the next stall, who was from the West. At that time he predicted dollar butter. Why, you know, the cattle ranges are getting smaller — Uncle Sam no longer has land to give away, and the thousands of acres of free grazing land have dwindled down to almost nothing. Feed is scarce and high, and now that the dairymen cannot get prices for their milk which will pay a reasonable profit, and as beef is so high, some of them are selling their milch cows for beef. Moreover, the demand is so great that many calves, which should be permitted to grow up and replenish our dairy stock, are slaughtered for veal. The present course will run us out of meat and dairy products, and these foods will soon be luxuries for the wealthy."

Not a pleasing prospect, surely! Perhaps many of our readers eat little or no meat. So much the better. Price is dependent on the relation of supply and demand. We can do very little to increase the supply, but we can by concerted effort do something to lessen the demand. A lessened demand for meat will give greater opportunity for the continuation of the dairy business; but we should be willing to pay a price for milk that will justify the dairymen in continuing in the business. G. H. H.

EFFECT OF TOBACCO ON THE HEART

IN the *Medical World* for April, 1917, is a paper by Dr. Harley Stamp, on "The Influence of Narcotics on the Blood Pressure during Athletic Exercise," in which he gives charts showing the effect of tobacco on the blood-pressure tracing. The paper is somewhat technical, and is best understood from the comments of Dr. Wm. F. Waugh, in the May issue of the same journal. Dr. Waugh says:

"We have all believed that tobacco affected the heart injuriously, and that the sudden, unexpected deaths of athletes were explicable in that way. I once had occasion to listen to the hearts of a number of dental students, merely placing my ear against their chests without turning back the coat or using a stethoscope. Pretty soon I looked up to the man and asked, 'Cigarettes?' He nodded affirmatively, and the rest shouted. But I went on and picked out every confirmed cigarette smoker by the heart action, and the youngsters grew somewhat subdued as I did. But such testimony is not now considered worthy of much credence, and it is certainly gratifying to have our crude clinical observations confirmed by such careful and thorough work as is here described."

ANCIENT PURE FOOD LABELS AND PURE FOOD LAWS

ACCORDING to Reisner,[1] pure food labels were in existence in 900 B. C. In the ancient city of Samaria seventy-five labels which were employed as seals on jars of wine and oil, have been excavated. These labels state the vineyard or orchard from which the product came, and the year when it was laid down in the storehouse attached to the palace of King Shab.

Congdon gives an amusing account of a decree issued in 1148 which evidently attempted to "fit the punishment to the crime." This decree specified that "a funnel shall be placed in the mouth of any man or woman convicted of having sold watered milk and the said watered milk shall be poured down the funnel until such time as a doctor shall declare that the culprit cannot be made to swallow any more without danger of death." And if a person was convicted of selling impure butter, he was to be put in the pillory "when the butter shall be crushed down over his head and shall remain there until the sun shall have melted it."

Most victims of unscrupulous adulterations would probably say the punishment was none too severe. It is to be hoped that the law had some effect. Nevertheless we must confess that the confirmed adulteration is still abroad in the land. Perhaps the only adequate treatment for a "dyed in the wool" adulterator would be to send him for life to a home for incurables. G. H. H.

[1] "Fight for Food," Leon A. Congdon, M. S. $1,25 net. J. B. Lippincott Company, Philadelphia.

QUESTIONS AND ANSWERS

Conducted by J. W. Hopkins, M. D., Washington (D. C.) Sanitarium

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Remember that it is not the purpose of this service to attempt to treat serious diseases by mail. Those who are sick need the personal examination and attention of a physician.
State your questions as briefly as possible, consistent with clearness, and on a sheet separate from all business matters. Otherwise they may be overlooked.
For prompt attention, questions should be addressed to J. W. Hopkins, M. D., Takoma Park, D. C.

Spots Before Eyes

"What causes black spots to be always flitting before my eyes?"

Black spots before the eyes are not uncommon, and are often a sign of digestive disturbance. They are occasionally caused by trouble with the vision, especially by nearsightedness. A thorough examination of the stomach and abdomen should be made by a competent physician. You will find relief by the use of food which is not irritating, and which can be reduced to a very fine pulp. You will have to avoid the coarser vegetables, such as cabbage and parsnips, but can eat almost anything else providing you chew it well.

Pain in Back; Indigestion

"Please give cause and treatment of pain in the neck and back with indigestion and passing of mucus from bowels. I am a farmer and overeat at times."

It is most likely that your trouble is due to catarrh of the stomach and bowels. However, if you are near a good physician, you should have your heart examined thoroughly. If you are constipated, you should take mineral oil at bedtime in doses of from one half to two ounces. The faithful use of this over a period of several weeks will relieve the gastritis and catarrh of the intestines. It is possible that you could use bran with your meals, although this may be too irritating in your condition. Avoid the use of too many kinds of food at the same meal, and especially be careful not to overeat. Flesh foods are very bad for colitis, and for gastritis. The flesh itself is irritating to the mucous membrane, and the putrefaction which is encouraged by flesh eating, is one of the causes of this condition. You should have fomentations to your spine at night, three times a week, and a warm bath on three other nights a week, with fomentations to the abdomen and stomach before the warm bath.

Why Vaccinate?

"Inasmuch as vaccination is sometimes followed by death, is it not a crime to continue this practice?"

Concerning the matter of vaccination, we are sorry that we cannot agree with you. It is true that there have been some deaths following the administration of smallpox vaccine. This may also occur in vaccination for typhoid fever and in the administration of antitoxin for diphtheria. It is also true in the medical treatment of other diseases. It is often the case that a sick person dies, even after the best is done with hydrotherapy, massage, and rational diet and medical care. The death rate in smallpox has been greatly lowered since the advent of vaccination. It is a boon to humanity. If vaccination were not enforced, we should have smallpox plagues prevailing in this country and in Europe. The dangers and complications of vaccination for smallpox are for the most part due to improper after-care.

Malaria

"1. How is methylene blue used in the treatment of malaria?

"2. Give the treatment for malaria."

Methylene blue is often used in the treatment of malaria. It is sometimes used in malaria in children, as it is tasteless. It colors the urine blue. It can be obtained at any drug store, but should be taken only under the supervision of a physician.

You are right in saying that the water treatment alone will not cure malaria. It is well to combine it with the use of quinine. If the patient cannot take quinine by mouth, it may be given in suppositories by rectum. I have often had good success by administering it in this manner when it caused nausea by mouth. I believe that the use of hydrotherapy should be combined with the use of the quinine. Cold-mitten frictions should be given during and just preceding the hot stage, and the fomentations and pack during the chills. If the general health is built up by means of the cold-mitten friction and short cold baths, your resistance to malaria will be increased. The cold treatments also increase the number of white blood corpuscles, and thus aid in preventing the disease.

Hardening Gums

"Give the treatment for hardening gums under artificial teeth."

Get two drams of tincture of myrrh and put ten drops in one third of a glass of water. Use this as a mouth wash twice a day, and afterward give the gums a gentle massage. Keep the plate very clean, washing it in a weak solution of sodium bicarbonate — one-half teaspoonful to one-half glass of water — after each meal and at bedtime.

Poor Memory; Lack of Concentration

"Give the treatment for poor memory and lack of concentration."

In the first place, secure regular, normal actions of the bowels, as the poisons which are absorbed from the intestinal tract are among the chief causes of these conditions. Next, you must provide yourself with foods which contain plenty of mineral salts. Baked potatoes and lettuce are good. Others which have the same salts are celery, spinach, and other green vegetables. Fresh fruits and bran also contain these salts. It is necessary to secure the requisite amount of sleep, proper exercise, fresh air, and good nourishment. An antitoxic diet is necessary.

Bed Wetting

"Kindly outline a treatment for enuresis. Is the excessive use of honey conducive to this trouble?"

The excessive use of honey will aggravate this condition in the child, particularly if he is not allowed to get out of doors and have plenty of exercise. The use of a great deal of honey will cause the child to drink more water, and this, especially in the afternoon or evening, is a great factor in causing this trouble. You should have your child examined for adenoids, diseased tonsils, and abnormalities or diseases of the urethra and bladder. It may be that circumcision will be necessary.

The treatment of this condition calls for a very bland, non-irritating diet. Cereals and milk are especially good. The child must not use coffee or tea, and meats and eggs should be prohibited. Small amounts of liquid may be given in the afternoon, but none before retiring, and the bladder should be emptied just before retiring.

It is sometimes beneficial to elevate the foot of the bed. The child should not be allowed to sleep on its back. To prevent this position, a towel may be tied around the body so the knot is in the center of the back. The bowels must be kept regular by laxative diet, enemas, or liquid paraffin given in small doses at bedtime and one-half hour before meals. Other medical treatment, such as the use of tonics, should be used under the direction of a physician. Massage, gentle friction of the whole body, cold sponging, especially of the spine, and cold douches to the spine and limbs, are very important and of great assistance. The child should also be examined for worms, and if they are present, should be relieved from them.

Incipient Tuberculosis

"Give the treatment for incipient tuberculosis."

An individual of thirty-five years with incipient tuberculosis should have a favorable outlook, especially with an ideal location, as at San Antonio. The fact that you have had hemorrhages should not discourage you.

The matter of diet seems to be a question with you. We find that it is best not to overeat to an extent sufficient to cause indigestion. While it is important that plenty of good, substantial food should be taken, it is absolutely necessary that this should be easy to digest, and that the stomach and intestines are not overburdened. The use of milk between meals, with eggs, vegetables, cereals, bread, butter, milk, and nuts at the regular meals should be sufficient. You must keep your bowels regular. For this purpose, enemas once or twice a week, the use of laxative food, and small doses of cascara or of mineral oil, are the best measures.

Flushing of the face and the disturbed heart action are due to your nervous irritability. This is probably the result of your stomach condition also. It may be that you are eating so much food that it causes a nervous overactivity of the stomach. You can overcome these disturbances by masticating your food thoroughly. You should take plenty of milk at your meals. It is possible that you will find it necessary to use more or less meat, as you seem to be boarding. We find it possible in treating all kinds of diseases to get along without the use of meat. I think if you control the stomach condition and keep your bowels regular, you will get along without the headaches.

You should have your doctor examine your heart and take your blood pressure, and it might be well to have the urine examined. It is well for you to use fats in the way of cream, butter, or olive oil. Olive oil, if taken at the beginning of the meal, in doses of two or three teaspoonfuls, will help relieve the hyperacidity. Peanut butter mixed with honey will not be good for you. It would be better to use the ordinary dairy butter. Honey itself used at meals will do you good. Rest in the sunshine and fresh air is of the greatest importance.

Falling Hair

"Following an attack of measles at fourteen, I have been troubled with falling hair. I tried —— and —— hair tonics, with no results. There is now intense itching,— a rash near the crown of my head,— and almost half of my hair has come out."

The remedies of which you write are not as a rule effectual in stopping the loss of hair. The salt water is good, but the application of salt moistened with a little water is better. This is called a salt glow, and after the head has been thoroughly rubbed with the salt, it should be washed out. This should be done about twice a week. If there is a dryness or scaling of the scalp, a little plain vaseline, a two-per-cent carbolized vaseline, or sweet oil should be applied first for a few hours. A hair tonic containing ten grains of resorcin, five drops of castor oil, and an ounce of pure grain alcohol, will help. An ointment containing one dram sulphur to an ounce of rose ointment is probably best. You will get much better results with this condition if you attend to the skin, to the liver, stomach, and bowels. You must cure the constipation, and adopt a diet which will stop putrefaction and indigestion in the large and small intestines.

The full tub baths are valuable for your skin. They should be taken warm enough to cause a little perspiration, and then should be cooled at the close of the bath. Recurrences will probably occur, and must be treated promptly.

NEWS NOTES

Habit-Forming Drugs

In many of the States the laws regulating the use of habit-forming drugs are being made more rigid.

To Test Criminals

Hereafter all criminals condemned to death in New York are to be tested by alienists as to their mentality.

To Have Tuberculosis Test

Since trench life favors the development of tuberculosis, the War Department has arranged to have all men joining the army examined for evidence of tendency to this disease.

Public Health Nurses

A postgraduate school to train public-health nurses has been provided for by the Kentucky State Board of Tuberculosis Commissioners with headquarters at Louisville, and branches at Lexington, Versailles, and other points. The tuition will be free to Kentucky nurses.

Bonus to Mothers

In Italy a fund to which laborers, employers, the state, and the insurance society each contributes, is used to aid prospective mothers in wage-earning families. Such a provision, by relieving the mother from the necessity of helping to earn the living of the family, insures a larger proportion of healthy children, and a lower child mortality.

Alcohol from Sawdust

A process for producing alcohol from sawdust is offered by the Forest Products Laboratory, Madison, Wis. One ton of dry sawdust worth not more than 50 cents will produce 15 to 25 gallons of 190-proof spirit. A plant large enough to distil 2,500 to 3,000 gallons daily can make alcohol at a cost of 14 to 20 cents a gallon, according to this laboratory's estimate.

Cottonseed Sausage

At a recent meeting of the Cotton Seed Crushers' Association in New Orleans, gingersnaps and jumbles made from cottonseed flour and wheat flour were served for luncheon. Cottonseed flour is not only suitable for bread and cakes, but is being made up into sausage, somewhat like the peanut sausage used as a ration for German troops. Three pounds of sausage meat to one pound of cottonseed flour is the proportion, and the low cost of cottonseed flour as compared with meat effects a saving of 8 cents a pound on the sausage. Moreover, the cottonseed flour contains more nourishment, having four times the protein content of sausage meat. A campaign for the promotion of cottonseed flour has been undertaken by the Louisiana Sugar and Rice Exchange. The question arises, If the cottonseed is so much more nourishing than meat, why not make the sausage entirely out of cottonseed meal?

Without Shoes

The people of Littau, Saxony, have been urged by the city council to go shoeless during the mild weather, as, owing to the scarcity of leather, they might otherwise be compelled to go shoeless during the coming winter.

Typhoid Carrier

A typhoid carrier, a woman aged seventy-six, has been discovered in New York. She admits having had typhoid fever forty-nine years ago. During all that time she has probably been a potential conveyer of typhoid. Many cases of mysterious origin may have been caused by her.

Dangers of Saccharin

The *Journal de Médecine,* Paris, issued a warning against the use of saccharin to replace sugar. First, because it has no food value; second, because it acts as a drug, antagonizing the action of the digestive enzymes, and thus retarding digestion. Prolonged exposure of the teeth to this substance is injurious.

Women Wanted to Work on Farms

The Woman's Committee of the Council of National Defense has received letters asking for the names of women willing to take the place of men in orchards, in running tractors, and on threshing machines. The men, they say, are being drafted or are being lured away from the duties on the farm by the fancy prices they can get for a day's work digging trenches or doing carpenter work.

National Board

The National Board of Medical Examiners held its second examination in Washington, D. C., June 13-21. There were twenty-four qualified candidates, twelve of which appeared for examination, the others having been ordered into active duty between the time of their application and the date of their examination. Of the twelve who took the examination, nine passed. Another examination was held in Chicago, October 10-18. There will be an examination in New York City early in December.

Buy Labeled Seeds

The Department of Agriculture advises every one to buy labeled seeds in the case of field and forage crop seeds, including cereals, corn, cowpeas, and soy beans. The label securely placed on the sack or container should convey the following information: (1) Name of seedsman; (2) Kind of seed; (3) Proportion of pure live seed present, with month and year of germination test; (4) Country or locality of origin in the case of the following imported seeds: Beans, soy beans, Turkestan alfalfa, and red clover from southern Europe and Chile. Reputable seedsmen have agreed to furnish this information. Buyers should refuse any seeds not having it.

Vegetable Oils from Cuba

Cuba is working with the Food Administration, not only to stimulate increased production of sugar for this country and the Allies, but also to plant large crops of seeds which yield vegetable oil. Peanuts and soy beans are to be planted, and also the castor bean, which grows wild throughout the island.

Interstate Quarantine

Amendments to the Interstate Quarantine regulations provide for the better sanitation of the camps of migratory workers, subject to the inspection of the Public Health Service, and for the supervision by the Public Health Service, of oyster beds. These provisions are to prevent the interstate spread of disease.

No Famine in Sugar

It would seem that there is no actual lack of sugar in the world, nor ability to get the sugar to the place where it is needed. The world's shortage is comparatively small, practically confined to Europe. With the stock on hand in this country and Cuba and that now coming from Hawaii, it would appear that, with proper management and the elimination of speculating and hoarding, there need be no scarcity while awaiting the new crop.

Costly Foods

According to Armsby, in *Science*, 1917, page 160, as quoted by Dr. Graham Lusk in the *Scientific Monthly*, October, 1917, "It may be roughly estimated that about 24 per cent of the energy of grain is recovered for human consumption, about 18 per cent in milk, and only about 3.5 per cent in beef and mutton. In other words, the farmer who feeds bread grains to his stock is burning up 75 to 97 per cent of them in order to produce for us a small residue of roast pig, and so is diminishing the total stock of human food."

The Army Medical Corps

Of the 24,000 physicians which it is expected that the army will employ, some 14,000 are already engaged in active work — medical, dental, veterinary, and sanitary. Every step in caring for the physical welfare of the soldiers, from the time they are sworn into service until they are discharged, comes under the Medical Department. This work includes inspection of foods, sanitation, care of the sick and wounded, the operation of the various hospitals, reëducation of the permanently crippled, and handling the supplies for all this work.

To Aid Direct Marketing

Agents are to be placed in several large cities throughout the country to organize interest in direct marketing among consumers. At the same time the agents will work through postmasters of small towns to interest producers in furnishing supplies. This will be the first intensive field work in behalf of parcel-post marketing that the Bureau of Markets of the Department of Agriculture has been in a position to carry on. It should result in the formulation of a carefully selected list of producers who may be depended on to furnish various supplies directly to consumers.

Wild Foods

The food authorities in England are calling the attention of country people to the wealth of wild plants which have food value. Directions are given for preparing these wild foods, and suggestions are made that as far as possible the country people use these foods and thus release a larger proportion of their garden truck for the sale, to sustain the town and city people.

Whale Meat

A company at Moss Landing, Cal., has established a packing house for whale meat, and will soon supply consumers on the Pacific Coast. The whale is not a fish, but a mammal, and the flesh is sold in steaks and roasts, free from bone and gristle, at 8 to 10 cents a pound. It resembles beef in flavor, texture, and appearance. It has become very popular wherever introduced.

Tetanus Court-Plaster

Some time ago it was rumored that German agents were selling court-plaster through the country, which was contaminated with tetanus, or lockjaw, germs. The United States government has had some of the plaster analyzed, and warns against the purchase of court-plaster from traveling venders. Whether the tetanus contamination was the result of accident or design was not revealed by the government.

A Word to the Obese

Those who are overweight often maintain very earnestly that they are light eaters. Perhaps they have such superb appetites that they do not realize how much they eat. Dr. Lusk takes the case of a clergyman who requires 2,500 calories daily and who takes 2,580 calories daily, an excess equivalent to one third an ounce of butter, an ounce of bread, or half a glass of milk. This trifling excess would in one year add 9 pounds to a man's weight, or 90 pounds in 10 years. Do you want to reduce? Leave off that dessert. Live on the plain foods which do not urge for a second helping. Leave the table feeling that you would have enjoyed more. And you will subtract pounds from your weight and add years to your life.

Limestone Phosphate

Reading the advertisements, one would suppose that limestone phosphate is derived from limestone. Perhaps in order to avoid prosecution under the Food and Drugs Act, the label on the bottle bears the words, "This product is not derived from limestone." The Food and Drugs Act has no control over any advertising claims so long as they do not appear on the label. In many papers there are reading notices advising the use of limestone phosphate as though it were a regular pharmaceutical preparation. But it is not. It is a proprietary preparation, put up by one manufacturer, and sold at the rate of $1.40 a pound. It is in fact a preparation of sodium phosphate, carbonated in order to make it effervesce. After effervescence it is sodium phosphate, which sells at the drug stores at about 25 cents a pound. The reading notices for limestone phosphate are paid advertisements.

Free Vaccination

In order to prevent as far as possible the spread of smallpox, typhoid fever, and paratyphoid fever, Secretary McAdoo, of the Treasury, has authorized the United States Public Health Service to vaccinate against either or all of these diseases any who may apply, the work to be performed at certain designated stations.

Poisonous Burma Bean

Poisonous beans resembling the common navy bean have been shipped into this country through Canada. They can be distinguished by their pale-yellow color and their fine lines radiating from the eye. They are tropical beans, and fortunately will not mature in this country if planted. On account of the hydrocyanic acid content of these beans, they are poisonous, and unfit for human food.

Revival of Cane Sirup

In view of the need of conserving sugar, it has been suggested that in Southern sections where farmers make corn sirup they can conserve sugar by creating better local markets for the farm supply of sirup. In the past there has been considerable difficulty marketing corn sirup, because when each farmer makes a home supply and from a dozen to a hundred gallons or more surplus, the product is unstandardized, and therefore difficult to sell through the ordinary grocery channels. It is one of the cheapest and most healthful sweeteners produced in this country, and can be used for cooking and the table.

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LIFE AND HEALTH
FOR 1917

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Note.— The twelve numbers begin with the following pages, respectively: January, 1; February, 33; March, 65; April, 97; May, 129; June, 161; July, 193; August, 225; September, 257; October, 289; November, 321; December, 353. Subscribers may obtain missing numbers as long as they last to complete their files, at 10 cents a copy.

Articles marked (C) are contributed; (E) editorial; (e) editorial notes and comment; (Q) questions and answers; (A) matter appropriated from other publications, and usually abstracted or abbreviated.

LIFE AND HEALTH, Takoma Park, Washington, D. C.

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Centrally located in one of the Most Beautiful and Healthful Parts of the State

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Is beautifully located seventeen miles from Chicago on the Burlington Road, and is of easy access to the great metropolis of the Middle West.

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The institution is also well equipped for the scientific and rational treatment of the sick, both medically and surgically, this equipment including Swedish movements, electric apparatus, radiotherapy, hydrotherapy.

Instruction in dietetics especially adapted to each patient, is part of the daily program; also individual physical training and mental diversion in the way of occupational therapy, both in and out of doors.

Private rooms with private telephone in each room and regular hotel service.

Send for booklet. Address

The Hinsdale Sanitarium - - Hinsdale, Illinois

"——*that thou mayest prosper and be in health, even as thy soul prospereth.*"
JOHN 3:1-2.

"HALF-HEALTH"

—does it satisfy you?

DO you know that only one in twenty enjoys "whole-health"? The rest live on, day after day, in a state of "half-health"—not sick enough to go to bed—nor well enough to engage with zest and energy in the busy activities of the day.

How about yourself? How do *you* stand in your "physical inventory"? How do you size up to the measure of a man? Are you making your physical endowment yield its penny-most return? Or—are you content to drift along—idly, aimlessly—hoping that by some miracle you will suddenly blossom forth into the healthy, virile person you ought to be?

Why not stop now—let things "slide" if need be—come to one of these homey, health-winning retreats—find out where you stand physically—and learn how to live daily for greater health and efficiency.

Each of these institutions has its special features to offer patients and guests. Here everything is scientifically planned for rest and health-building. Here each day is made to count.

You live each day with health-betterment in view. You receive the benefits of a simple diet (properly proportioned), exercise, sunshine, fresh air, rest for body and mind—together with natural, rational curative treatment adapted to your particular condition. Is this worth while?

A simple request for literature today will start you on the high-road to greater health and greater achievement. Write now—right now!

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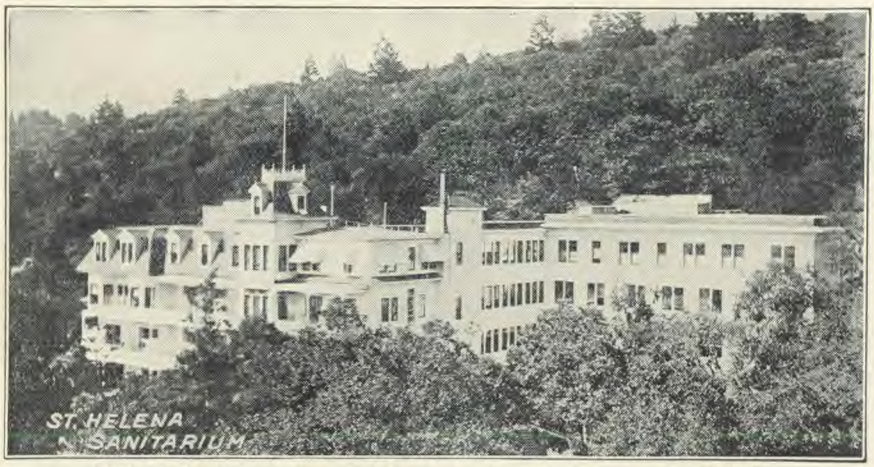
112 Sanitarium Ave., National City, Cal.

St. Helena Sanitarium



THE MAIN BUILDING — SHOWING THREE OF THE FIVE STORIES
New Concrete Hydrotherapy Building at the Right

AWAY from the noise, excitement, and contamination of the city, and nestled close to the heart of nature, on a beautifully wooded slope of Howell Mt., is situated the St. Helena Sanitarium.

ITS natural setting, in a forest of live-oaks, firs, manzanitas, and madronas, together with an almost unending variety of flowers and foliage, gives a beauty and fragrance to the place that beggars description. It must be seen and enjoyed to be appreciated.

EVERY modern facility favorably known to medical science in the treatment of curable conditions, has been incorporated into the institutional régime. Thus nature and science have combined to make the St. Helena Sanitarium all that can be desired by the diseased body or the weary mind.

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