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How Tobacco Cuts Down the Safety Margin

By J. H. KELLOGG, M.D.

"FOR THY SAKE, TOBACCO, I would do anything but die," said Charles Lamb in his famous farewell to tobacco. He had come to the point where life must be sacrificed or tobacco given up.

A good many people in these days have reached a similar situation. They have reached the place where they must do one thing or the other—they must die or stop using tobacco. That condition comes to every tobacco user sooner or later. There can be no doubt at all that every man who smokes, whether he be a heavy smoker or a light smoker (and after all these terms are wholly relative, since what might be light smoking for one man would be heavy smoking for another) is certainly shortening his life. He is doing something which is a damage to him.

NEARLY ALL ANIMALS, and indeed, most living things, are injured by tobacco. The smoke of tobacco is a poison to plants. The green-house keeper who makes use of tobacco to destroy the green flies on his roses has to exercise great caution or he will cause serious injury to the plants.

The tobacco plant furnishes food for no creature in the world except a worm. This worm is provided with special means by which the nicotine and poisons are disposed of, so that they appear to do it no harm. But man is not endowed with the protective functions that the tobacco worm possesses, so that it would seem quite proper to leave the tobacco plant to be taken by the animal that can eat it with impunity.

EVERYONE ADMITS that tobacco is bad for boys, yet tobacco is no worse for boys than it is for grown men or women. It has just the same value for each one because it is a poison and an almost universal poison. One reason why it is bad for boys is because it stunts growth and development. When a boy habitually smokes, he becomes dwarfed, his growth is stopped. It has been proved again and again by statistical comparisons that there is a marked difference in the growth of smokers and non-smokers. The weight of non-

smoking Yale students increased in one year twenty-four per cent more than the weight of the smoking students. In height non-smokers far outstripped the smokers, while in chest growth, which is a very important means of measuring the vital capacity, the chest growth increased in the non-smokers forty-two per cent more than in the smokers. The lung capacity of the non-smokers increased seventy-five per cent more than the lung capacity of the smokers.

THESE FIGURES WERE OBTAINED with young men of eighteen to twenty-one years of age who were just finishing their development into full manhood. All the smokers were dwarfed—dwarfed because nicotine and the other poisons that are found in tobacco are such deadly poisons that they damage all the vital functions. All the life processes are more or less impaired by tobacco. The kidneys, the liver, the digestion, the heart action, the blood-making and every other function of the body is damaged. But you ask, "If this is true, why is it that this effect is not seen in the grown man?" The answer is obvious—men already have their growth; they have already attained their maximum height. This peculiar effect of nicotine cannot be manifested in men because men have already attained their full height and their full chest capacity, so that there is no opportunity for the poisonous effects of tobacco to be shown in arrest of development. The poisonous effects of tobacco develop in a subtle way in adults. Grown people have something that in a way corresponds to the extra vital energy manifested in growth—known as "the margin of safety." In growing, the boy is adding to his weight and his height. He is continually expanding and developing from day to day until he reaches full growth, developing, indeed, for some time after he has obtained his full stature. Everybody knows that a boy of twenty years, although he may be as tall and large and weigh as much, has not the strength and has not the endurance of the man of twenty-eight. And why?—Because the man of twenty-eight after he has stopped growing in height, after his bones have reached their full length, still went on developing. His muscles grew larger and stronger and firmer, his heart grew larger, his brain increased in size. It is a fact, indeed, that the brain continues to grow until forty years of age; the lungs go on developing and expanding, and all the vital powers are increasing continually, until finally they reach the maximum, a point that is far beyond the momentary needs of the body. For instance, the total lung capacity is about three hundred cubic inches. After one takes an ordinary breath he can by making a great effort take in one hundred cubic inches more, and likewise by strong effort can compress the lungs so as to force out one hundred cubic inches more. But after he has breathed out all he can, there are still left in the lungs one hundred cubic inches of air that he cannot get out.

Thus it is seen we have a lung capacity of three hundred cubic inches in addition to the twenty-four or twenty-five cubic inches that we employ in ordinary breathing. About two-thirds of a pint is the amount of this tidal air. We take in at each breath two-thirds of a pint of air and breathe out about two-thirds of a pint, whereas in addition to this we have about three hundred cubic inches of air in the lungs, ten times as much as we ordinarily use.

THIS MEANS THAT IN LUNG CAPACITY we have an enormous margin of safety—Nature's provision for emergencies. It is this that enables us to run to catch a train or hurry to get out of the way of cars; or run up stairs or make violent exertion of any sort when necessary.

AGAIN, when we use our muscles to their fullest capacity, we must take into our lungs seven or eight times as much air to carry away the poisons of the body as we do when we are lying still. Our muscles are capable of increasing their activity at least ten times, or one thousand per cent, yet we do not have to have ten times as much air, since the utilization of the air is more efficient during violent exercise.

WE HAVE ALSO a margin of safety in heart capacity. The heart is able to do five times as much work as we ordinarily require of it. The liver is able to do many times the amount of work that is ordinarily required of it, and the kidneys are able to do fifteen or twenty times the amount of their usual work. The skin, too, is able to do in one hour—as in the case of a man working hard in a harvest field on a very hot summer day—as much work as it ordinarily does in a state of rest in the entire period of twenty-four hours. So there is a great margin of safety in the working capacity of the skin. It can do twenty times as much work as is ordinarily required of it.

Thus it is with almost every function of the body. We possess an enormously greater capacity for work than we are utilizing. An interesting experiment was made with a dog. By means of a tube a stream of water was passed into the dog's stomach and out again until a barrel full of water had been thus used. It was then found that the amount of pepsin in the water was sufficient to digest a dog several times the weight of the dog that made the pepsin. In other words, the dog had produced pepsin enough to digest many times its own weight of flesh. This shows what an enormous margin of safety Nature provides.

NOW WHILE THE ADULT SMOKER is not stunted in his growth, yet he is damaged by the using up of his margin of safety. Let him smoke for two or three or four or five or ten years,

and then test him in an effort to run in a race or by making a special effort of some kind. You will find that he is suddenly short of breath. What is the meaning of this? Simply that he has lost a large part of his margin of safety. His heart now is able to do but a little more than the ordinary work required of it, instead of five times the ordinary work. In the emergency it fails and a severe test may result in total failure and death.

THE SAME THING IS TRUE OF THE KIDNEYS. By means of the renal efficiency test it is possible to tell just how much work a man's kidneys are able to do in comparison with the amount of work they ought to do. Under this test the capacity of the smoker is always found diminished, very often to fifty per cent of what it ought to be. A man who had stopped smoking some years before, and who thought himself to be in perfect health, was given the test and it was found his kidney capacity was only fifty per cent of normal. He had lost half his margin of safety—in fact, more than half, because a man can get along with but one-third of his original kidney capacity. He can live with two-thirds of one kidney—which is one-third of his original kidney capacity—but when a man gets down to 33 1/3 per cent, the minimum and the margin of safety, the other 66 2/3 per cent is lost. The man who had got down to fifty per cent had used up all but seventeen per cent of his safety margin, which meant that he would be an easy prey for Bright's disease.

IN THE PHIPPS INSTITUTE in Philadelphia, where hundreds of post-mortem examinations are made annually of persons who die of tuberculosis, the records for the past fifteen years have shown continuously and increasingly with each year that tobacco users are more than twice as likely as non-smokers to have tubercular consumption—very plain indication that the lungs are damaged by the use of nicotine. Growing boys who do not smoke increase their lung capacity in a year's time seventy-five per cent more than smokers do, so that we may infer that the smokers use up their safety margin seventy-five per cent faster than the non-smokers do, which explains why they get tuberculosis early. We might go on and show how the safety margin of every organ of the body is consumed by the use of tobacco. Unfortunately the smoker does not know tobacco is hurting him until he has been irreparably damaged. A man who smokes says, "Well, tobacco may hurt some people, but it doesn't hurt me. What is one man's food is another man's poison, because we are all different. Tobacco doesn't hurt me. Why, if I thought tobacco hurt me, I have sense enough to know that I ought to stop, and I would stop." He does not give up tobacco until his heart margin is all gone, until he is so short of breath that he

cannot run to catch a train, or cannot hurry a little in going up stairs to his office. Then he begins to think something perhaps is the matter, and goes to the doctor, who tells him, "You have cardio-vascular renal disease." That is a very long word, but it is very significant. It means that the heart, blood-vessels and kidneys are diseased. There is very little left of that man; all the medical skill in the world cannot save his life, because his machine is used up; it is damaged and it cannot be repaired. All that can be done is to help him eke out a crippled existence. What a terrible sacrifice that man has made, just to temporarily tickle his nerves with tobacco! He has thrown away his safety margin, a thing more precious than gold, because it cannot be replaced.

ANOTHER VERY IMPORTANT FACT that has been recently demonstrated is this, that nicotine stimulates the activity of the suprarenal glands and causes them to secrete a substance that constricts the blood-vessels. This substance, which is known as "adrenalin," raises the blood-pressure. If a little drop of it is put under the skin the skin becomes perfectly bloodless. In case of a hemorrhage it is sometimes an extremely valuable remedy, as it causes the blood-vessels to shrivel up so that the blood cannot flow. This, however, is not a good thing to have going on inside a healthy body. Nicotine increases the formation of adrenalin so that it causes a contraction of the arteries, bringing about high blood-pressure and later on hardening of the arteries.

FEW PEOPLE DIE OF OVERWORK. The hardest job thousands of men have is the elimination of the nicotine they are taking in. Many a man expends more vital energy in getting rid of the effects of tobacco, getting rid of the poison he inhales from his cigar, than he does in his business.

"CONNIE MACK"—in other words, Mr. Cornelius McGillicuddy, —Manager of the Philadelphia American League baseball team, says this of tobacco: "I have watched very closely, the last twelve years or more, that boys at the age of ten to fifteen who have continued smoking cigarettes do not as a rule amount to anything. They are unfitted in every way for any kind of work where brains are needed. No boy or man can expect to succeed in this world to a high position and continue the use of cigarettes." Connie Mack has made of the Philadelphia Americans one of the most efficient bodies of athletes in the world, and he is certainly qualified, both as a judge and a trainer of men, to speak with authority.

Eat More Cornmeal and Whole Wheat Flour and Reduce the Cost of Living

By J. N. HURTY, M.D.
Secretary, Indiana State Board of Health

CORNMEAL and whole wheat flour will give more nourishment, health and gustatory delight than any other food, and at less cost. Fruits and vegetables must go with them. A perfectly balanced human ration can be prepared from cereals, fruits, milk and vegetables. Mush and milk is a great strength builder and is a cure for dyspepsia. In this respect this great dish is unlike pickles and coffee, which reduce strength and cause dyspepsia. A splendid food, at once toothsome and strengthening, is a mixture of cereals. Mix thoroughly together corn grits, whole wheat flour, rye meal, oat meal and bran in equal weights—say two or five pounds of each. Cook as much as the family needs for a day in a "fireless cooker" over night. This makes a food of great excellence. When eaten with milk or cream or with butter and sugar, it is delicious to the taste, it builds up muscle flesh and brain, makes a clean head and a clean tongue, and *is cheap*. Bread, rolls, biscuits and crackers, may be made from this "cereal compound." Another good name would be *cereal mixture*.

This cereal compound, prepared as bread or as mush, or in any way, might well be the *piece de resistance* of every meal. It would be wise to place it on the big platter at the head of the table and banish the meat, supplied in small amount, to an obscure spot below the center. Supplement this "staff of life" with milk, fruits and vegetables, and then eat slowly and in good cheer.

IT HAS BEEN WELL SAID, "A man is what he eats, how much he eats and how he eats it." Here is the secret of nutrition and strength right before us, also the secret of moderate cost of feeding. Will we accept it and make practical application? Of course not; for, as Sir Ray Lankester says, "Slowly moving, impractical man, refuses, except in partial degree, to conform to the laws of his well-being." With a physiological and dietetic eye notice people feed. Watch them in a grand high-priced cafe, at a dairy lunch, at a high counter railroad lunch, in the fly-plagued dining room of a small town hotel; indeed, any place, any where. First, a slice or chunk of flesh, cut from some dead animal, and ten to one spoiled in the cooking. Then comes bread, which, the chances are, is over or under fermented, and underbaked, and soggy. Next, fried potatoes, which probably are reeking with grease, each piece having a raw center, making it a sinker of the first class. Next, storage eggs more or less ptomained, and fried good and hard. Next, black muddy coffee, boiled until it has turned to tar.

HOW THE EATER EATS: see him eat. First, every article is heavily frosted with salt. This is to give his kidneys something extra to do and to help them enter upon degenerative processes and finally end in Bright's or some other man's disease. Next, he heavily peppers his potatoes and some other articles on his plate. This is to stimulate, irritate and constipate the mucous linings of his stomach and intestines, and in this way finally knock his digestive and assimilation processes silly, and to prepare his appendix for removal. On the side, the eater has a cup of black coffee rich in the drug caffein. The caffein is for the purpose of whipping up his heart and nerves and wearing them out more quickly. When finally his heart pumps irregularly and gives him pain he can go to a doctor, who will thump his chest and mark out the heart outlines on the bare flesh with a blue pencil. When this is done the doctor will tell him, "Its pretty bad, can't do much for you; you must slow up and eat lightly. Fifty dollars please."

The eater also has a big plate of salad drenched with a vinegar dressing. The vinegar sharpens the appetite and makes the eater over eat and this gives him much pleasure. But finally the digestive organs get tired of being prodded with vinegar, spices, cocktails and other drugs and they kick. Then the eater hikes to the drug store and buys a bottle of Dr. Curem's infallable digestive tablets. "By golly" he says, "they do the work." He sticks to this declaration for some time and keeps on assaulting his stomach.

FINALLY he says, "them tablets ain't as good as they were at first. I guess, now that the makers have a reputation, they have cut out or cut down the expensive drugs in them." Finally he has rheumatism, urinary troubles, eczema, intestinal pains, etc. Now he is paying for his irrational and impractical feeding. When warned in the beginning he called the man who warned him a crank and said—"Oh rats, I'd rather die ten years sooner than to do the way you say." But now, when the skeleton stalks before him, beckoning with his black hand, the eater says—"Oh doctor, why doesn't science find some cure for this?"

THE MORAL: *There is no substitute for righteousness.*

OLD DOCTOR KITCHINER, an early nineteenth-century writer, whom we have frequently referred to in these pages, once quoted Abernethy, an eminent surgeon, to the effect that "we often tease our stomachs by fasting for too long a period; and when we have thus brought on what I may call a discontented state of the organ, unfitting it for its office, we set to a meal, and fill it to its utmost, regardless of its powers or its feelings."

The New Race That is to Come

THE OLD RACE IS DYING. The human species is being crushed under a load of self-imposed hardships superimposed upon adverse environment—influences such as no living organism could withstand. Far tougher forms of life have succumbed and vanished under a far less heavy burden of degenerative influences.

THE MOST EMINENT SCIENTIFIC MINDS of the age recognize the growing evidences of impending race extinction. The demand for discussion of this momentous problem, the gravest ever faced by any body of scientific men, led to the organization of the Race Betterment Conference held at Battle Creek last January, which brought together hundreds of scientists from all parts of the United States, and attracted the attention of the whole civilized world.

While this great body of serious minded men recognized the fact that race degeneracy and decay are actively in evidence in every civilized community, there was no pessimism in the air. Optimism was the dominant note. The remedy is to be found in the creation of a new and better race of men. This can and will be done. Man has created new races of horses, cows, pigs and chickens, which are immensely superior to their progenitors. It is plain that an application of the same principles will accomplish the same result for man himself.

THE TASK WILL BE FAR MORE DIFFICULT, but it can be done. Our present knowledge of eugenics and euthenics is sufficient to enable us to successfully combat every degenerative influence and to repair the damage which ages of wrong living has done. A stir in the direction of race betterment is felt throughout the world. Just at present the horrible European war obscures this movement, and is producing race degeneracy at a probably greater rate than any previous event in the history of the world; but after the war is over sensible men will view this wholesale butchery of the very flower of the race, a catastrophe which will leave its blight upon all the generations to come, as an international crime which cannot be repeated, and will turn with serious earnestness to the work of repairing the damage so far as possible by a world-wide movement for race betterment and the creation of a new and better race.

DOCTOR KITCHNER attributed to Charles Darwin the statement that "those who have *weak stomachs,* will be better able to digest their food, if they take their meals at *regular hours;* because they have both the stimulus of the ailment they take, and the periodical habit to assist digestion."

Why Texture and Color of Clothing Are Important Health Factors

By MRS. E. E. KELLOGG

ALL CLOTHING should be permeable to air. It must needs also serve to regulate the temperature of the atmosphere which envelops the body, by preventing the too rapid exchange of the heat given off from the surface of the skin with the outer air. In this respect much will depend upon how and of what the garments are made.

Different materials act differently in relation to the transmission of heat, which is conveyed from the clothing by both conduction and convection, and also by radiation.

THE MOST COMMONLY USED MATERIALS for clothing are wool, cotton, linen and silk. The chief difference in their conducting power lies not so much in the substance itself as in the structural nature of the fibre and the weave of the cloth. A loosely woven fabric, because it contains air between the fibres and meshes —dry air being an excellent non-conductor—makes a more desirable garment than a more firmly woven textile.

COTTON, the chiefest of the products of the vegetable kingdom useful for clothing, has a flat and twisted fibre, which, on account of its spiral character, can be manufactured into a much more elastic fibre than can linen, the fibres of which are cylindrical, straight and stiff. Linen cloth is a better conductor of heat and consequently cooler than cotton fabrics.

WOOL FIBRE has a jagged, scale-like surface, is soft and so elastic that it is difficult to produce from it a compact thread. When woven the fabric furnishes a great number of air spaces between the meshes, and clothing made from it is both very warm and very light.

When wet, as in washing, woolens do not dry as readily as do cottons and linens; and because of their jagged structure, the fibres, while holding the moisture, if subjected to pressure or friction, as by rubbing, become locked and matted together. The result of such mechanical adherence of the fibres is a shrinkage or felting of the fabric.

Again, if the woolen fabric is subjected to an alternate cooling and heating process, as by transferring it, when washing, from a cold to a hot water, the fibres contract—what is termed "fulling" resulting to the cloth. These peculiarities of woolen fabrics make entire wool textiles undesirable for garments which must be washed frequently.

THE CONTINUED SHRINKING and fulling due to laundering continuously diminishes the air spaces between the meshes and also the elasticity of the fabric, until it not infrequently happens that undergarments and hose of all wool, washed every week, soon become almost impervious to air. Such garments should be at once discarded, as they not only hinder the access of air but imprison the foul exhalations and perspirations of the body.

LINEN AND COTTON FIBRES, having no such asperities of surface, cannot become matted and felted like wool. To diminish the propensity for shrinking it is quite customary to mix some cotton or silk fibre with wool in the manufacture of underwear and white flannels. This does not greatly decrease the warmth; even cotton alone may be so woven as to be almost equal in warmth to wool.

A most important requirement of healthful clothing is that it shall be able to take up the moisture being constantly thrown off by the body, and transmit it to the air. Linen absorbs moisture very readily, and dries very quickly. Cotton possesses the same property in a somewhat lesser degree.

SILK AND WOOL have the property of absorbing a considerable moisture without feeling perceptibly damp to the skin. Wool may absorb as much as thirty per cent of its own weight of moisture. But since wool dries slowly, it will be apparent that if the moisture held be perspiration from the body with its burden of foul waste, a garment of wool worn next the skin, though warm and comfortable, can hardly be looked upon as wholesome and cleanly for more than a few hours after it is donned.

Not only is there maintained in a moist and decomposing condition the excretion given off with the perspiration, but the accumulated moisture in the garment makes it act with a poultice-like effect to relax the skin.

FOR THESE REASONS some fabric which dries more quickly is better suited for a covering of the surface of the body. A soft cotton or linen garment is preferable. Over this may be worn one of wool, if desired. The quick drying of linen or cotton exposes the skin to rapid cooling by evaporation, and in all but the warmest weather it is important, if the garment be thin, to wear an extra one over it, since, unless some additional protective measure is taken, there may result a too rapid loss of bodily heat.

Such an arrangement obviates undue heating of the skin and conduces to its healthful action, while another most important consideration is that the cotton or linen garment can be boiled in the laundering and thus made really germ-free, a thing which is quite

out of the question with a wool garment, although the need for it be even greater.

Clothing should be as light in weight as is consistent with the needed warmth. It should never be so heavy as to seem an incumbrance or to cause fatigue. Several thin garments are warmer than one thick one, because of the additional warmth provided by the interposed layers of air.

SUCH CLOTHING AS CHAMOIS JACKETS and rubber garments may have a place as protectors against the elements when one is out of doors, but they should not be relied upon as common covering for the body, since, being largely impermeable to air, they hinder the constant evaporation of body moisture and the garments beneath become saturated. In such condition water takes the place of air in the meshes of the fabric, making the clothing a poor conductor of heat. Then if the wearer happens to sit or stand in a draft, the moving air coming in contact with the moist garments carries the heat away swiftly, both by convection and increased evaporation, and in consequence the body may be seriously chilled.

THE COLOR of clothing is important, because its radiation and reflection of heat are effected thereby. Dark colored fabrics, particularly black goods of a rought texture, absorb the heat rays, while white garments reflect the rays of both heat and light. Dark colors accumulate heat; however, they radiate it more freely than does white, hence make garments less warm for winter wear, except when worn in the direct sunlight. Dark colored garments afford the greatest protection from the chemical rays of the sun. However, sunlight is a most valuable health agent that needs to be cultivated rather than shunned.

In general it may be said that white garments are warmer in winter and cooler in summer than garments of a darker hue, and afford sufficient protection against the powerful chemical rays of the tropical sun when this is necessary. White is the color universally chosen for clothing by the natives of tropical countries, while it is the prevailing color of fur-bearing animals in the polar regions.

MEDICINE should never be used to check perspiration. Perspiration has a purpose. It is a remedial effort. The best means of stopping excessive perspiration is to bathe the sweating part with very hot water, and afterwards with cool water or a little alcohol and water.

Some Autumn Clothing Don'ts

DON'T wear more clothing than is really necessary for comfort. Many people render themselves sensitive to cold by wearing too much clothing.

DON'T forget on going out of doors to slip on an outer garment of some kind if the temperature is considerably lower than the indoor temperature; especially protect the head and the feet.

DON'T dress the neck too warm when going out in cold weather. A little extra protection is required for the ears, but it is not necessary to muffle up the neck with thick furs to protect the ears. A light scarf or ear muffs are all that is needed. Warm wrappings about the neck cause the skin of the neck to become moistened with perspiration. When the wrappings are removed indoors, the slow cooling which takes place in consequence of the evaporation chills the parts, and may produce sore throat or nasal catarrh.

DON'T forget, on going to bed at night, to hang up the underclothing in some place where it will air overnight. It is a good plan to lay the clothing over a warm steam coil when it is convenient to do so. Persons who perspire freely should employ two suits of underclothing, wearing each every other day, allowing one day for airing and drying.

DON'T wear thin-soled shoes. One may take cold from chilling of the feet as the result of wearing thin-soled shoes in walking over a cold pavement, even when the pavement is perfectly dry.

ONE OF THE MOST PROLIFIC CAUSES of disease and premature death, says Dr. William J. Robinson, Editor of the *Medico-Pharmaceutical Critic and Guide,* is to be found in the drug habit and in alcoholism. "While there is no question that alcoholism in all its phases is much less prevalent now than it used to be," says Doctor Robinson, "there is also no question that the drug habit, by which we understand addiction to cocaine, morphine, etc., is greatly on the increase. Whether it is due to the pernicious rascality of human devils who, in order to make some profit, deliberately initiate young men and women into the alleged pleasures and sure horrors of morphine, and cocaine, or whether the stress of our modern life is responsible for human beings looking for stimulation and for forgetfulness from their present misery, the fact is that the drug habit evil is constantly spreading, is becoming a serious factor as a cause of disease, and must be stemmed before it is too late."

The Race in the Unmaking

IN THE COURSE OF A DISCUSSION of war a few years ago, Dr. David Starr Jordan made an assertion that is of profound significance in the light of contemporary history in Europe: "In the red field of human history the natural process of selection is often reversed." Just when we had begun to believe war a thing of the past, and when definite results—small, it is true, but tangible for all that—were beginning to come of the efforts put forth by national and international peace organizations—just then breaks in the most blighting war of all time and gives racial progress a check from which it will not recover for many generations.

IT IS NOT ALONE THE NEWER PRINCIPLES of humanity, of morality, of ethics that will suffer; rather the war is sapping the very blood of the race. For as Doctor Jordan well said, "the man who is left holds in his grasp the history of the future." The "man who is left" is not the flower of the race, for the flower of the race is the first to be taken; most often the "man who is left" is the man who was too old or too infirm to be taken into service, or the soldier who returns from war maimed and broken. This is the man who begets the new generation, and as the seeding is bad the harvest must end in disaster to the race.

THE HISTORY OF IMPERIAL ROME bears out this claim. Seeck has shown how difficult a matter it was, owing to the draining effect of continuous warfare, for the Emperors to bring into their armies the 175,000 efficient, able-bodied Romans needed annually. Indeed, under the later Emperors it was impossible to raise more than 10,000 men of Roman blood each year. Seeck ascribes this condition, not only to the actual lowering of population, but also to the deterioration of the Roman people as the result of constantly taking from the male citizenship the men best suited to reproduction of the race.

IN A PAPER read before the First International Eugenics Congress, held in London in 1912, Professor Vernon L. Kellogg, of Leland Stanford Jr. University, has described precisely similar conditions resulting from the Napoleonic wars. So great had been the mortality of the earlier period of the war, says Professor Kellogg, that "in order to make his conscription net gather its necessary load of doomed men he first had to reduce, in 1799, the minimum height of conscripts fit for service which had been established by Louis XIV in 1701 at 1624 mm., and had remained unchanged for a century, to 1598 mm. (an inch lower). In 1804 he lowered it two inches

further, namely, to 1544 mm., a total of three inches below the original standard. It remained at this figure until the restoration, when (1818) it was raised by one inch and a quarter, that is, to 1570 mm. Napoleon had also to reduce the figure of minimum military age."

The mortality tables of France show, too, Professor Kellogg has found, that there has been "a steady decrease since 1800 in the death-rate of children under five years with the exception of one period. In the decade 1815-1824, immediately following the terrible man-draining wars of the Revolution and Empire, the annual death-rate of children under five was higher by one and one-half per cent than the highest other period."

A MORE CONSPICUOUS EXAMPLE of the deteriorating effect of war is shown by Professor Kellogg to be the fluctuation in the height of the French during the past century: "The French Government has kept, since the beginning of the last century, detailed figures of height and freedom from or presence of infirmities in the case of all the conscripts examined by its army boards. From these figures (not all published, but all of which have been made available) the number of men examined out of each annual contingent of men reaching military age, and of men accepted for service and of men rejected because of undersize or bodily infirmity, and therefore the varying proportion of physically unfit to physically fit men arriving at the age of twenty in the successive years of the century, can be determined.

"FROM THESE FIGURES it may be stated with confidence that the average height of the men of France began notably to decrease with the coming of age, in 1813 and on, of the young men born in the years of the Revolutionary wars (1792-1802), and that it continued to decrease in the following years with the coming of age of the youths born during the wars of the Empire. Soon after the cessation of these terrible man-draining wars, for the maintenance of which a great part of the able-bodied male population of France had been withdrawn from their families and the duties of reproduction, and much of this part actually sacrificed, a new type of boys began to be born, boys indeed that had in them an inheritance of stature that carried them by the time of their coming of age in the later 1830's and 1840's, to a height one inch greater than that of the earlier generations born in war time. The average height of the annual conscription contingents born during the Napoleonic Wars was about 1625 mm.; of those born after the wars it was about 1655 mm.

"THIS FLUCTUATION IN HEIGHT of the young men of France had as an obvious result a steady increase and later decrease in the numbers of conscripts exempted in successive years from military service because of undersize. Immediately after the Restoration, when the minimum height standard was raised from 1544 mm. to 1570 mm., certain French departments were quite unable to complete the number of men which they ought to furnish as young soldiers of sufficient height and vigor according to the proportion of their population.

"RUNNING NEARLY PARALLEL with the fluctuation in number of exemptions for undersize is the fluctuation in number of exemptions for infirmities. These exemptions increased by one-third in twenty years. Exemptions for undersize and infirmities together nearly doubled in number. But the lessening again of the figure of exemptions for infirmities was not so easily accomplished as was that of the figure for undersize. The influence of the Napoleonic wars was felt by the nation, and revealed by its recruiting statistics, for a far longer time in its aspect of producing a racial deterioration as to vigor than in its aspect of producing a lessening of stature."

FRANCE, of course, is the horrible example—not, however, because the effects of the Napoleonic wars were peculiar to that struggle, but because France was subjected to bloodshed longer and more continuously than any other nation. Even so short a struggle as the war of 1870 was sufficient to show Germany that the Empire is not immune. According to Guerrini, among children between the ages of three and five years, the mortality was higher in 1870 and 1871 than for 1869 or 1872. To be exact, for Prussia the figures for each one hundred are as follows: in 1869, 31.51; in 1870, 33.83; in 1871, 35.12; in 1872, 32.76.

IN ALL THE COUNTRIES AT WAR, however, high infant mortality is of infinitely less consequence than what Professor Kellogg calls "those horrible ills of congenital idiocy, pronounced diathesis of disease, inevitable deafmutism and all the rest that the modern study of heredity has shown to be the unescapable fate of the child born of defective parents. So that figures of infant mortality due to pre-natal influences pale into insignificance for the eugenist in the face of the figures of the living doomed to suffering and incapacity and to be a drag on the race."

THESE CONSEQUENCES have followed every war, even the least prolonged and far-reaching, and the result of the conflagration now raging in Europe can only be degeneracy that must appal

even the most confirmed optimist. Before the war the optimist had slender enough grounds for his cheerful outlook upon the future of the race. But when this great struggle has ended, and there begin to appear the long train of evils that inevitable accompany war, it will require superhuman endeavor on the part of the demoralized races to pull themselves together and prevent extinction as the result of disease and degeneracy. Due to this fact alone wars may come to an end automatically, for no militarist, in the face of the cost in human life and vitality, is going to be able to convince parliaments and councils of the necessity of armaments that destroy the enemy only to sacrifice their own people to disease.

THERE CAME ACROSS THE CABLES the other day news that Maeterlinck sought to be accepted into the Belgian army. The great mystic—poet—essayist must look upon the present struggle, with all its hatreds and jealouses and primitive passions, as a justification of a claim he once made for a non-meat diet: "I for my part, can affirm that those whom I have known to subsist on this [the meatless] regimen, have found its result to be restored or improved health, marked addition of strength, and the acquisition by the mind of a clearness, brightness, well-being, such as might follow the release from some secular, loathsome, detestable dungeon. . . . All our justice, morality, and all our thoughts and feelings, derive from three or four primordial necessities, whereof the principal one is food. The least modification of one of these necessities would entail a marked change in our moral existence. Were the belief one day to become general, that man could dispense with animal food, there would ensue not only a great economic revolution—for a bullock, to produce one pound of meat, consumes more than a hundred of provender—but a moral improvement as well."

THE FIRST SCIENTIFIC WRITER in England to give tea drinking serious study was Doctor John Coakley Lettson. Doctor Lettson found in the tea habit a direct cause of the increasing use of spirits. "The first rise of this pernicious custom [that of drinking spirits to excess]," he said, "is often owing to the weakness and debility of the system brought on by the daily habit of drinking tea; the trembling hand seeks a temporary relief in some cordial to refresh and excite again the enfeebled system, whereby such persons almost necessarily fall into the habit of intemperance."

THE EATING OF MUCH FLESH fills with a multitude of disease.—*Porphyry (233-304 A. D.).*

Effects of the Air Bath in Fevers

NOW AT THE BEGINNING of the winter months, it is well to remember that the benefits of cold air are not confined to the lungs, but that through its effects upon the skin it may serve much the same purpose as cold water in affecting the deeper tissues and organs. The tonic effects of cold are well illustrated, indeed, by the refreshing influence of a current of air when one suffers from heat.

THE MODERN SCIENCE OF AEROTHERAPY is based upon this fact, applying air of a given temperature to the body in either an active or a quiescent state. That is, the body may be simply surrounded by air of a given temperature—what might be called an immersion air bath corresponding to the full or immersion water bath; or the surface of the body may be exposed to a current of air having any desired temperature and rate of movement, which we know as the "fan bath" or "air douche." Benjamin Franklin was one of the first to call attention to the value of the air bath, and it was the custom of this great philosopher to administer such a bath to himself just before retiring at night by removing his clothing, and walking about in his apartment. He declared that he derived great benefit from thus exposing the surface of the body to contact with the air.

In cases of fever the temperature of the air in the sick room has a most decided influence upon the body temperature of the patient, an increase of a few degrees in the temperature being often responsible for a rise of temperature in the patient which could not otherwise be accounted for. The fever patient is somewhat in the condition of the cold-blooded animal, whose temperature rises and falls with that of the surrounding medium; for the body has lost the power of regulating its temperature, as it does when in a normal condition.

IT SHOULD BE REMEMBERED that while atmospheric temperatures below 58° F. cause increase of heat production, air at a temperature above 60° has a like tendency. Air is practically neutral between 60 and 70° while at 104° the heat production may be three and one-half times the normal amount. Whenever the body temperature is above normal, tissue metabolism and heat production are increased.

ONE OF THE EARLIEST and most remarkable cases of the use of cold air in fever was reported by Doctor Currie, an English physician, in May, 1801. "I was desired to visit a patient ill of a fever, in Spading Street (Liverpool)," said Currie. "I found him

on the tenth or eleventh day of the disease, delirious and restless; the surface of the body dry, and his heat 104° F. The room was close and I desired the only window in it to be opened. The wind, from the north-west, blew directly into this window; and the bed being situated between it and the chimney, a pretty brisk stream of air passed over it. The patient had just thrown off a considerable part of his bed-clothes, and was exposed naked to the breeze. I sat by him, with my finger on his pulse, watching the effect. In a little while, the pulse fell from 120 to 114, in the minute. He became more tranquil, and soon after sunk into a quiet sleep, in which he remained, when the water for an affusion was prepared; of course, we did not disturb him. When I left him I desired the attendants to suffer him to remain in this situation all night, unless he became cold; but to take care to administer the proper nourishment. Once or twice in the night, the attendants placed the bed-clothes on him; but he soon became hot and restless, and they took them off again. While naked, he slept tranquilly, and had, generally, a gentle moisture on his skin. In the morning I found him perfectly collected, and considerably refreshed, his pulse about 100, and his heat 101° F. He coughed, however, a little; and we covered him with a sheet, which he now found agreeable. The cough produced no serious inconvenience, and, in a few days, the patient recovered, under common treatment."

A MEDICAL JOURNAL copies the following paragraph from a bulletin issued by the Equitable Life Insurance Company under the heading, "Another Kind of Race Suicide." Rather, we inquire, is it not race "murder"?—

"There are in this country 20,000,000 school children, or twenty per cent of the entire population. Seventy-five per cent of these children are suffering from some partially or completely remediable defects, which are more or less interfering with their physical, mental and moral advancement.

500,000 have organic heart disease.
1,000,000 have spinal curvature, etc.
1,000,000 have tuberculosis.
1,000,000 have defective hearing.
5,000,000 have defective vision.
5,000,000 have malnutrition.
6,000,000 have operable tonsils and adenoids.
10,000,000 have defective teeth.

Seventy per cent of the deaths in the United States are due to diseases that could in most instances be controlled and suppressed by proper medical school inspection."

Beefsteaks and Tobacco vs. Efficiency

"EDDIE" COLLINS, the great second-baseman of the Philadelphia American baseball team, in addition to being one of the greatest "second-sackers" in the history of the game, is a remarkable example of the efficient life, and at the same time an earnest exponent thereof. Especially is he awake to the deadly effects of tobacco and overeating.

Describing the life of a major league team on the road he says, "Few of us eat much lunch, a heavy meal having its bad effects when the team gets in action. There is great temptation for the young minor league player, being put up at first-class hotels, American plan, to eat his head off. I honestly believe that more good youngsters have been ruined for big league work simply from overeating than from any other extraneous cause. For instance, there is a young pitcher on our club who has the makings of a star. Yet he is only half a success. He lacks ambition. In the box he seems listless. This is because he has a weakness for roast beef. Before going to the ball park, he persists in stuffing himself at noon time, and 'Roast Beef' has come to be his nickname."

IN AN ANECDOTE given by Mr. Collins there figures no less a personage than the great "Honus Wagner," the veteran short-stop of the Pittsburgh Nationals. "A few years ago," says Mr. Collins, "a company, manufacturing a certain brand of cigarettes, was very eager to print Wagner's autographed photograph on little cards that could be inserted in the boxes. They sent a man to see him in his home at Carnegie, Pennsylvania. The delegate was wise enough to secure an intermediary, a Pittsburgh newspaper man who knew Wagner well. The newspaper man was to close the deal and receive a fat commission. He offered Wagner $500 for the use of his name, then $1,000. Finally he handed Hans a blank check and told him to write in his own figures.

" 'No,' said Wagner, stubbornly.

" 'Why not?' asked the newspaper man in amazement. 'I thought all you ball players were money crazy.'

" 'I'll tell you,' said Wagner; 'it isn't worth the money to me to encourage any boy to smoke cigraettes. If my name and picture on a card will have that result, I'm not going to sign up, no matter how high you go with your offers.' "

This instance, added to others which we have presented to our readers from time to time during the baseball season just past, must convince every one that clean living is absolutely essential in work calling for rapid and perfect co-ordination between the brain and muscles. A moment's reflection, too, will show that in any occupa-

tion where there is still keener competition than there is in baseball, where people must be more constantly alert, more wide awake to seize the main chance, where hours must be longer and work heavier —reflection we say will show that the great body of men and women if they are to achieve success must as the first step cut out those habits that make for intemperance in eating and drinking.

Infection of the Colon a Cause of Rheumatic Gout

ARTHRITIS, or what is commonly known as "rheumatic gout," is neither rheumatism nor gout. It is a diseased condition of the joints in which there may be an absorption, a shrinking or an atrophy of the joints, or an overgrowth of some of the bony parts of the joints. If it is an overgrowth it is called "hypertrophic arthritis;" if it is an absorption of some portions of the cartilages or bones, it is called "atrophic arthritis."

THOSE WHO HAVE GIVEN the subject careful study believe that this disease is due to poisons absorbed from some part of the body. Attention has been called to three different areas in which the poisons may be generated. One is the throat. Diseased tonsils may produce poisons which, absorbed into the blood, will give rise to this diseased condition of the joints. A diseased condition of the mouth, such as pyorrhea, or an ulcerated state of the gums, also gives rise to this disease of the joints.

BUT BY FAR THE MOST COMMON of all the sources of the poisons which cause these destructive changes in the joints is the colon. Persons subject to rheumatoid arthritis, rheumatic gout, or atrophic arthritis are extremely subject to colitis. In almost every case of chronic rheumatism there are evidences of colitis, as also in chronic rheumatic gout. It is probable that in ninety-nine out of every one hundred cases the colon is the real source of the poisons. This is a very reasonable conclusion, for in the colon we have a very large surface area. In colitis there is an ulcerated surface. In pyorrhea the gums are ulcerated, though owing to the fact that is a very small surface and in a place that can easily be cleansed, the amount of absorption must be small. But with infection of the colon, which is five feet in length and perhaps six or eight inches in lateral area, there are at least two or three square feet of surface, the whole of which may be diseased and absorbing poisons. It must be apparent, then, that in arthritis nothing of a

local character will cure the joints. The source of the trouble must be sought and removed.

FOR THIS various things can be done. Anything which builds up the general health is of value. Tonic treatments—such as cold applications carefully administered, and hot and cold applications made to the back, chest, abdomen, limbs, and other parts of the body—are found helpful in building up the general resistance. Very often patients who have rheumatic gout have eczema, psoriasis and other forms of skin disease. Very often the skin is sallow. In many cases there are brown spots on the hands and other parts of the body, unfailing signs of chronic intestinal intoxication. Almost invariably the patient has very putrid stools, definite evidence of the production of enormous quantities of poisons from the colon. To get rid of these poisons one must adopt an antitoxic diet from which are excluded all meat, all eggs, milk and flesh foods of every description. These foodstuffs must be eliminated, because they contain large proportions of protein, which gives off virulent poisons when undergoing putrefaction in the colon.

THE DIET should consist chiefly of fruits and vegetables. Cereals should be sparingly eaten, largely because they contain an excess of acids. A diet of fruits and vegetables, all kinds of fruits and vegetables is indicated. In a report presented before the International Congress on Hygiene at Washington it was shown that vegetables and fruits and alkaline substances are of immense value in restoring the normal alkalinity of the tissues. A person who has rheumatism of any sort has an excessively acid state of the body. These persons are very subject to hardening of the arteries also.

An observation made by Williams, of England, is this, that persons who have rheumatic gout are especially likely to suffer from cancer. They are especially liable also to enlargement of the liver and Bright's disease and other organic diseases, which is further evidence that this trouble with the joints is simply a manifestation of the chronic poisoning to which the body has been exposed.

DOCTOR HOFFMAN, who at the beginning of the eighteenth century was professor of medicine at Halle and physician to the king of Prussia, believed deeply in the value of cold water, and went so far as to call it a universal remedy. "If there exists anything in the world that can be called a *panacea*," he said, "it is pure water; first, because it will disagree with nobody; secondly, because it is the best preservative against disease; thirdly, because it will cure agues and chronic complaints; fourthly, because it responds to all indications."

What is Lacking in Polished Rice?

NOT INFREQUENTLY we hear the statement that polished rice is inferior to the unpolished grain. It is not the polishing of the rice, however, that does the harm. The polishing is accomplished by a process in which rice is mixed with a little talcum powder and glucose, and then revolved about in a great drum, thus acquiring a polish on the outside. There is no particular harm in this, for in washing the rice, as every one should do before cooking it, the talcum is washed off. When traveling in the Orient some years ago the writer observed in the markets of Jerusalem that the rice had a brick red color. Upon inquiring the reason we learned that the rice had been mixed with red clay, which, however, is very carefully washed off before the rice is cooked, so that no harm results.

THE REMOVAL from the rice kernel before polishing of a thin layer of material containing certain substances necessary for the body—this it is that does the mischief. Just what these substances are is not altogether known. No chemist has been able to determine their exact composition, but German scientists have recently given to them the name of "vitamines."

The same thing may be observed in the case of wheat. When wheat is ground and the outside layers—the bran—are removed, some element is lost; something is removed from the grain that is necessary for complete nutrition. It is the vitamines, which have been found to be absolutely necessary for the maintenance of a healthy nervous system. When an animal is fed upon ordinary rice that has had the bran removed or upon bolted wheat flour—fine flour from which the bran has been removed; or corn or any other cereal from which the bran part has been removed—when an animal is fed upon such food exclusively, it develops a peculiar form of neuritis known as "beri-beri," which results fatally. Pigeons fed upon such rice or wheat soon become lame. They will stand on one leg, and limp. By and by the joints begin to swell. They begin to show evidence of impairment of flying ability; later on they cannot fly at all, and in a short time become unable to rise, and die. An investigator who made a careful study of this subject observed that pigeons which had been on a diet lacking the "vitamines" until they were nearly dead, when given a simple extract of rice bran with water were hopping about as lively as ever and flying in the air within a few days. This experience justifies the conclusion that various forms of disease, now included under the general head of neuritis, neuralgia, rheumatism of the nerves, etc., may have an entirely different origin and be of entirely different character from what has been supposed, since it is beyond belief that an animal suffering from serious organic disease can be cured in twenty-four or forty-eight hours by simply changing its diet.

FROM THE EXPERIMENTS WITH PIGEONS it appears that only a very small quantity of vitamines is required to supply the body needs—though small as that amount is the body must have it. Potatoes, fresh vegetables and fruits all contain vitamines.

IN A NUMBER OF STATES there are laws against the selling of polished rice, but the unpolished rice that is sold is in no way better than the polished rice. The real evil is in the removal of the bran from the rice. If one wants to get whole rice containing all the elements that are necessary for body nutrition he may find it in what is called brown rice.

Czar's Edict Establishes Prohibition in Russia--Only Good Result of War

LOCAL OPTION ELECTIONS, said B. L. T., the Chicago *Tribune* "colyum" conductor, the other day, have taken the "ill" out of Illinois, the "tuck" out of Kentucky, and the "gin" out of Virginia. One might say with equal truth that the Czar's edict prohibiting the sale of vodka during the war, while it took gin away from the Russian people, has put ginger in its place. In southern Russia, indeed, the change that has come over the populace seems little short of miraculous to those who knew the country in ante-bellum times.

PEASANTS who were hopeless in indolence and depravity already have become self-respecting citizens. The effect on character is already visible in neatly brushed clothes instead of ragged and ill-kept attire. Huts which formerly were delapidated and allowed to go without repairs are now kept in good condition. The towns have become more orderly and the peasants indulge in harmless amusements. These people now save fifty-five per cent of their earnings, which formerly went for drink, while they have increased their earning capacity through sobriety. This extra money is now devoted to the necessities and comforts of life.

SO WHOLESOME have been the effects of sobriety, indeed, that the Russian Minister of Finance has been instructed to see that the prohibition order be continued indefinitely after the war.

IT HAS RECENTLY BEEN DISCOVERED by an eminent English oculist that the conditions of autointoxication which result from poisons absorbed from the colon are a frequent cause of loss of accommodation in the eye; that is, loss of ability to see well at a distance or to see well close by. Iritis, corneal ulceration, retinitis are other eye troubles that have been traced back directly to autointoxication.

Seasonable Recipes

AN ESTEEMED READER, Mr. Joseph Keenan, of Sherrill, New York, writes to suggest the value to GOOD HEALTH readers of seasonable Battle Creek Sanitarium menus and recipes. We have acted upon the suggestion as being essentially practical, and herewith reproduce a typical autumn mid-day menu as served in the Sanitarium dining room, together with recipes for the various foods called for. The entire menu as served on the Sanitarium tables, is not given, but rather a representative dish from each group of foodstuffs. The various food elements sustain the proper relation to one another, while the number of calories is sufficient for a man or woman engaged in fairly active work. The list of the various foods follows, with their caloric value in protein, fats, and carbohydrates. Following this are given recipes by which the housewife can prepare the dishes in her own kitchen.

Menu

	Protein	*Fats*	*Carbohydrates*	*Total*
SOUPS				
Potato Chowder	15	77	58	150
ENTREES				
Nut Sausage	30	100	20	150
VEGETABLES				
Baked Potatoes	11	1	88	100
White Cream Sauce	7	50	18	75
Fresh Spinach	9	3	13	25
RELISHES				
Peas and Celery Salad	18	46	36	100
Sliced Tomatoes	4	4	17	25
BREADS				
Entire Graham Bread—1 slice	10	4	61	75
Sterilized Butter		100		100
BEVERAGES				
Apple Juice			75	75
DESSERTS				
Cabinet Pudding	15	67	68	150
Golden Sauce	4	69	52	125
				1150

Recipes

POTATO CHOWDER

¾ pint sliced potatoes
1 pint boiling water
1 teaspoon salt
½ small onion
1½ cups milk
½ cup cream

Put the potatoes to cook in the boiling water with the salt and sliced onion. When tender put two-thirds of them through a colander and add to the remainder of the potatoes. Add the milk and cream, reheat and serve over crackers. This quantity should make one quart.

Nut Sausage

1 cup pine nuts
3 tablespoons gluten flour or browned flour
⅓ cup zwieback crumbs or toasted bread crumbs
¼ pound protose
2 tablespoons Japanese soy or 4 teaspoons savora
1 tablespoon butter
1 tablespoon grated onion
⅛ pound yogurt or Neufachatel cheese
1 egg
¾ cup strained tomatoes evaporated to ¼ cup
1 tablespoon brown sugar
1 teaspoon sage
¼ teaspoon thyme
½ teaspoon summer savory
¼ teaspoon nutmeg

Roll the pine nuts, mince the protose, and add to the pine nuts. Then add all other ingredients and form into two-inch rolls and bake. Serve with the following sauce:

½ cup brown sauce
¼ cup condensed tomato or ¾ cup strained tomatoes evaporated to ¼ cup
1 teaspoon sugar
4 olives
¼ cup cream
¼ cup pine nuts

Roll the pine nuts, mix with the other ingredients. Heat and serve.

Brown Sauce

¼ cup flour
¼ cup butter
1½ cups water
½ teaspoon salt
⅓ cup strong cereal coffee
½ cup strained tomatoes or 2 tablespoons condensed tomato
2 teaspoons savora

Rub the flour and butter together. Heat the liquids, but not to the boiling point. Add salt and strained tomato. Pour the hot liquids over the flour and butter, stirring meanwhile. Add savora and let boil five minutes.

To Bake Potatoes

Wash and scrub the potatoes with a vegetable brush until perfectly clean, dry with a cloth and bake in a moderate oven until they feel soft when pressed with the fingers. It will take about three-

quarters of an hour unless the potatoes are small. When done, take each potato in a towel in the hand and press gently without breaking the skin until the whole potato feels soft, then the skins may be ruptured slightly and the potatoes sent to the table at once. Never pierce a potato with a fork to see if it is done, as this allows the steam which forms within the potato to escape, and the potato is not properly cooked.

White Sauce

4 tablespoons butter
4 tablespoons flour
2 cups milk
1 teaspoon salt

Heat the milk in a double boiler, but do not let it reach the scalding point. Rub butter, flour and salt together until smooth, then slowly pour over them the hot milk. Stir until smooth and thickened.

Boiled Spinach

Pick over the spinach, carefully removing all wilted leaves. Cut off the roots and the coarse fibre of all the leaves which require longer cooking than the remainder of the leaves, toss into cold water, and wash through several waters, taking care to agitate it considerably each time in order to free it from sand. Put to cook in boiling water and let boil five minutes. Drain, add salt and allow it to finish cooking in the liquid which remains on the leaves. Let cook until tender, which will require about twenty-five minutes. Drain off the excess moisture, if any. Add butter, one tablespoonful to a pint of the cooked spinach. Serve with slices of lemon, and if desired, hard boiled egg yolks.

Pea and Celery Salad

1 can peas
1½ cup chopped celery
1 cup cooked mayonnaise
1 onion
⅓ teaspoon salt

Drain the juice from one can of peas, wash, drain again. Add to the pease the grated onion, salt, and chopped celery. Mix all with the mayonnaise (scant measure) and garnish with lettuce.

Graham Bread

2½ cups milk and water (equal parts)
2 tablespoons malt honey or molasses
1½ cups sterilized bran
About 2 quarts whole wheat flour
2 teaspoons salt
½ yeast cake
½ cup warm water

Soak the yeast in the warm water. Scald the milk and cool to lukewarm. Potato water may be used instead of the milk and water. Add water, the molasses and salt, then the softened yeast.

Mix the flour and bran together and stir into the liquids. Knead thoroughly and put to rise in a warm place. When light, mold into a loaf. Let rise again and when light, bake in a hot oven about one hour. Decrease the heat somewhat during the latter part of the baking. This makes three small or two large loaves.

Graham flour may be used instead of the whole wheat, in which case less bran will be needed.

Cabinet Pudding

½ cup sugar
⅜ cup butter
2 eggs
¼ cup milk
⅛ cup molasses
¼ cup boiled apple juice or dark fruit jelly
1¾ cups flour
¾ cup seeded raisins (½ pound)
⅛ teaspoon mace
¼ teaspoon cinnamon
Rind of ½ lemon
2 teaspoons baking powder
¼ teaspoon soda

Prepare the boiled cider by cooking down 2 cups of fresh apple juice to make one-quarter cup. Cream the butter and sugar, add the molasses, boiled cider, grated lemon rind and the milk. Sift the soda, cinnamon, baking powder and the mace with the flour. Dredge the raisins with a little of the flour. Stir the dry ingredients into the liquids, then fold in the raisins. Turn into molds or into a pudding dish and steam three hours, then brown slightly in the oven.

Golden Dressing

¼ cup pineapple, apple or other light colored fruit juice
¼ cup lemon juice
⅓ cup sugar
2 eggs

Beat the eggs sufficiently to blend the yolk and the white, but not until foamy. Add the lemon juice, the pineapple, apple, or other juice, and the sugar. Cook in a double boiler, stirring constantly until thickened. Set in cold water to cool.

In reviewing recent articles which have appeared in the technical press on the medical inspection of school children, the New York *Evening Post* says of the newer phases of health agitation in this country, "The fight is no longer merely a fight against disease; it has become a campaign for health. We are attempting to cure ourselves before we are sick, as by inoculation, and to make ourselves strong to resist attacks, as by exercise and open-air living." And of the ethical problems associated with the compulsory element in many of our health regulations—"The right of *every* person to health is a more pressing issue just now—in this country at least—than the right to life or liberty. Yet it is as valid as these, for it is a part of the right to pursuit of happiness."

What Falling Hair Indicates

THE HAIR IS CONTINUALLY GROWING. Its length increases till its weight becomes so great the root of the hair which holds it in is no longer able to sustain its weight and then the hair drops out. That is why hairs are of different lengths. Coarse hair has larger roots and will grow long. When one has autointoxication his general vitality is interfered with and the roots of the hair are not developed and are not as strong as they otherwise would be. When a hair is held up to the light it is seen to be smaller in some places than it is in other places—a space an eighth of an inch long, perhaps, where the hair, it seems, must break off. That spot indicates a lost dinner or a bad night's sleep, or an attack of autointoxication. That inch of hair records the tide of vitality as it rose and fell in the body. When vitality is low over the entire body the roots of the hair are imperfectly developed, and the hair is likely to fall out. Dandruff is a parasitic disease and the parasites get down around the root of the hair, which becomes diseased—and that is another reason why the hair falls out.

The Fasting Faddists

THE WRITER IS FREQUENTLY ASKED concerning the benefits to be derived from fasting and the dangers that accompany it. The fasting fad perhaps is not doing great harm, as on the whole most people eat more than they should, and the total abstinence for a few days will bring the average consumption of food per capita rather closer to the rational standard. Many people, however, spend money and time, to say nothing of the inconvenience they undergo, only to be disappointed in the end. The writer frequently meets patients who have fasted from one to four weeks without beneficial results.

AND NOW COMES Dr. Alexander Bryce, an eminent London physician, in a recent book entitled "Dietetics," with this to say about the fad: "When, on the other hand, food is administered in quantities insufficient to repair the daily waste, then the reserve store of glycogen in the liver is first called upon, thereafter the adipose tissue is laid under contribution, and finally the protein tissues themselves are compelled to sacrifice their substance to the urgent demand for fuel for the production of energy, to keep the internal machinery of the heart, lungs, digestive organs, etc., at work, and heat, to facilitate their functioning. It is painfully pathetic to read of the victims of the fasting craze who, under the misconception that they can burn up all the accumulated waste matter of the body only and therewith rid themselves of all seeds of disease, at the same time

leaving their bodily tissues clean, pure, wholesome, and intact, submit to days and even weeks of starvation under the euphemistic title of fasting for health. I was gravely informed the other day of one who had triumphantly and successfully passed through the ordeal for over thirty days, and was assured that not a vestige of disease existed, but impatient to claim her reward in renewed vigor, broke her fast just one meal too soon, and succumbed to the effects. It is ludicrous were it not a matter of such serious import to listen to the unmitigated nonsense that emanates from the votaries of this practice."

THE SIMILE which best fits the fasting man, says Doctor Bryce, "is not that of a furnace whose bars are choked with ashes and whose flues are clogged up with soot, so that a general conflagration is welcome to clear away the obstruction in order to produce more effective combustion. It is rather that of a furnace which had disposed of its extraneous combustible material and proceeds to attack the furnace bars and flues, so that an explosion is imminent."

DOCTOR BRYCE in the same volume says that "exercise does not increase the output of nitrogen, showing that neither protein food nor protein tissue is used for the production of energy. Carbonic acid, on the other hand, is excreted in greatly increased quantities during exertion, and this proves that energy is derived from the combustion of fats and carbohydrates."

IN THIS CONNECTION Doctor Bryce alludes to the non-nitrogenous element of protein and shows that it is absolutely untrue that it is any more valuable than fats and carbohydrates in performing functions in which these latter elements play a part, so that "there is no rational basis for eating more than a very limited quantity of protein." It is a remarkable fact, he says, "that except during convalescence from serious illness, or for a day or two at the beginning of a holiday, it is impossible to store up as a reserve in our tissues any of the excess protein food we consume, whilst fats and carbohydrates are freely stored up, usually as adipose tissue."

Doctor Bryce quotes at some length from the "Battle Creek Sanitarium Diet List," as showing the caloric value of the commoner foods, and describes the experience of the Sanitarium as leading to a belief in "a low-protein fleshless diet constructed as nearly as possible to ten per cent protein, thirty per cent fat, and sixty per cent carbohydrate." Doctor Bryce does not state the exact proportion which he believes the protein should sustain to the other food elements, but that his views closely approximate those of the Battle Creek Sanitarium Diet List is shown in his statement that "any person who never takes less than one gram of protein per kilogram of his body weight, *i. e.,* for a man weighing 140 pounds about two ounces of protein, is not likely to go far wrong."

Good Health Question Box

A Department Devoted to Inquiries on Health Topics Received from GOOD HEALTH Subscribers, Together with the Editor's Personal Replies.

11586. Second-year Feeding.—O. H. D., Michigan:

"What is the best cereal food for a baby beginning its second year, and that is being weaned from a malt sugar formula?"

Ans.—Rice gruel, potato gruel, and wheat meal gruel are the best farinaceous foods for an infant. The diet should never be confined to cereals, as this class of foodstuffs is deficient in alkaline salts, which are quite essential for growing infants.

11587. Low Blood-Pressure.—M. B. L., Wisconsin:

1. "Please suggest the various causes and symptoms of low blood-pressure?"

Ans.—Children and infants in a low state of health generally have low blood-pressure. Blood-pressure is low in fevers. In all cases of heart weakness the blood-pressure is low. Low blood-pressure is always present in cases of shock or collapse as in fainting.

2. "Does low blood-pressure indicate a serious condition?"

Ans.—Yes.

11588. Eczema.—J. R. B., South Dakota:

"Do you advise the use of picric acid as a cure for eczema?"

Ans.—Picric acid might improve the surface in certain cases of eczema, but this disease is rarely curable by use of external applications alone. The real cause of the disease is absorption of poisons from the colon. Flesh foods of all kinds should be avoided. The bowels should be made to move three times a day. Careful adherence to an anti-toxic diet in many cases is sufficient to effect a cure without application of local remedies.

11589. Varicose Veins.—J. F., New Zealand:

"Please indicate the cause and cure for varicose veins and prominent veins on feet and legs?"

Ans.—Palliation may be obtained by the application of an elastic bandage or the use of a silk stocking. For radical cure ligation or removal of the veins is necessary.

11590. Defective Speech.—R. G., Saskatchewan:

1. "My little girl of five years talks like a child of two, using words in an unconnected way. She is perfectly healthy and of good hearing, and is bright and learns to do things quickly when shown. Would you regard her as mentally defective in any way?"

Ans.—Evidently the child is backward in certain phases of mental development.

2. "Could the child be taught the common school subjects if sent to a special school later on?"

Ans.—Yes.

11591. Gas in Stomach.—R. F. S., Iowa:

"A recent GOOD HEALTH suggests that in relieving gas in the stomach one should open the mouth wide and take five or six deep breaths. Should the breathing be through the mouth or the nostrils while the mouth is open wide?"

Ans.—Breathing naturally occurs through the mouth and the nostrils when the mouth is widely open.

11592. Decaying Meat.—G. W. S., Connecticut:

1. "A farmer living near the city of Meriden, this State, had a horse die of blind staggers in the winter. He apparently dragged the carcass into his hen yard, and allowed it to lie there for some time, probably several weeks, until all the flesh was eaten off by the poultry; the eggs from this farm, and doubtless the dressed poultry, meanwhile going constantly to his private customers in the city named. Would not the alternate freezing and thawing render the horse meat highly putrescent and endanger the lives of the consumers of the eggs and poultry?"

Ans.—The practice of feeding dead animals to poultry is certainly in the highest degree reprehensible and ought to be prevented by law.

2. "Is not the above action an indictable one at civil law, in your judgment?"

Ans.—Whether an act of the sort is indictable or not depends upon whether it is recognized as illegal by the statutes of the State or ordinance of the locality in which the act is committed.

3. "Please give your candid opinion of the moral character of a man who would do such a thing, keeping his customers in ignorance of what the hens were eating."

Ans.—The moral turpitude would depend of course upon the degree of enlightenment of the guilty party. It would seem that a person of ordinary intelligence would know better than to feed dead

animals to poultry being fed for food. It must be easy for a person catering to his self-interest to convince himself that if it is wholesome for a man to eat flesh it must be equally healthy and wholesome for a hog or chicken to eat flesh. If it is wholesome for man to eat prime beef—which is simply decayed beef with a *haut gout*—and limberger cheese it ought to be at least as harmless for a hog to eat food in a similar state of decomposition. Some of our eating habits are so detestably bad it can hardly be argued that for the hog or chicken to eat decaying foodstuffs taken second hand in the form of pork is any worse or more likely to do harm than when eaten in the original form. Evidently the practice of flesh eating naturally leads to a depravity of taste and distortion of judgment.

11593. Regurgitation of Food.—S. C. S., Illinois:

1. "What causes regurgitation of food? Is this an indication of catarrh of the stomach?"

Ans.—Regurgitation of food is in most cases probably due to permanent or temporary obstruction of the outlet of the stomach. The pylorus may be permanently obstructed by cancer or other growth, or it may be temporarily obstructed by contraction. The last named condition is probably the most frequent cause of regurgitation.

2. "What is the remedy?"

Ans.—When the outlet of the stomach is obstructed by some organic change, such as ulcer, cancer or compression by bands due to inflammation, relief may be obtained by operation. Spasm of the pylorus is most frequently produced by hyperacidity, which may generally be relieved by regulation of diet. The foods may be soft (not in a liquid state); that is, in the form of purees. The food should be swallowed by slight mastication only, and one or two tablespoonsful of olive oil should be taken at each meal. Care should be taken to have the bowels move three or four times a day.

11594. Shingles.—R. B. S., Ohio:

1. "What is the cause of shingles?"

Ans.—An attack of shingles is due to a special form of inflammation of the nerve trunks supplying the affected part.

2. "Please describe its symptoms?"

Ans.—The leading symptom is a very painful erruption following the course of the affected nerve.

3. "Suggest remedies to be applied in the home?"

Ans.—In the acute stage the surface should be covered with cornstarch, and the patient should stay in bed so as to keep the parts at rest. If the severe pain remains after the erruption disappears, hot

applications, the arc light, and application of diathermy ought to be recommended. Diathermy is a recently devised method of applying the so-called wireless electricicity to the body.

11595. Pain in the Shoulder — Sour Milk Enema.— R. M. M., Iowa:

1. "What is the cause of continuous pain in the left shoulder, side, and arm?"

Ans.—The pain may be due to any one of various causes. Rheumatism and neuritis are the most likely causes.

2. "Is there any objection to using the whey from sour milk as an enema?"

Ans.—No.

11596. Throat Trouble.—R. G., Ontario:

"Following attacks of sore throat and tonsilitis, I am troubled with hoarseness of the throat—so much so as to hinder common conversation. Please advise treatment?"

Ans.—It is probably an impaired condition of general health, very likely due to intestinal toxemia or autointoxication. The bowels should be made to move three or four times daily. A throat specialist should be consulted. Inhalation of hot steam would be beneficial.

THE EDITOR of the Milwaukee *News* draws a moral from the walking clubs so much in vogue in Germany, which have—at least *had* before the war—as part of their program the visiting of farm houses and factories along the way, where the members derived valuable information about the way the people of various classes live and work. Such clubs should be formed in America, says the writer —"Children in large American cities know about farms only from hearsay. Many of them have not been outside the city limits, some indeed, scarcely more than a few blocks from their tenement homes. If the teachers of the public schools could arrange to take classes out into the country whenever occasion afforded, it would be of great benefit all around. Of course, these excursions should not be overdone as to distance; but walking for all sorts of people in the United States, if indulged in in moderation, would be very beneficial. A few miles the first time, and a little more perhaps on every other trip would bring the best results. But the main thing is for the people to get out and walk. Young and old ride too much, anyway. The walking club should become a part of American life for its general welfare."

When a Man Marries

DR. SAMUEL DIXON, the able Health Commissioner for Pennsylvania, has laid down some very sensible rules which should govern a man who contemplates marriage. First, says Doctor Dixon, "a man should not marry unless into a family with a history of reasonable longevity, free from hereditary disease. He should not marry a woman advanced in life, delicate, feeble, or afflicted with any inherited deformity. The age most proper for women in this climate is nineteen or twenty years and for men twenty-four or twenty-five years. Women of a nervous temperament, those who are extremely irritable, hysterical, subject to convulsions, or to epilepsy from organic disease, ought to avoid matrimony. In this country marriages before the ages of twenty-five and nineteen respectively are contraindicated, because, as a rule, previous to these periods of life, the body is not fully developed, the different functions are not perfect, and any offspring developed by them in their immature conditions must be deficient in vital power."

THIS IS PUTTING THE BUSINESS OF MARRYING on a very practical, matter-of-fact footing. But this is where it belongs, and where the new ideals of race improvement will insist that it remain.

Poisonous Effects of Cane Syrup

A RECENT NUMBER of the *Journal of the American Medical Association* contains an article by Roy Blosser, M.D., of Atlanta, who describes experiments in which he fed cane syrup to dogs. The result of these experiments was to demonstrate that cane syrup, brown sugar, and other similar cane-sugar products are decidedly injurious.

ONE DOG WAS FED HALF AN OUNCE of cane sugar for six months, at the end of which time the animal was found to be depreciated in weight and suffering from chronic diarrhea, weakness, soft and flabby muscles and general appearance of feebleness. Examination of the dog after death showed chronic inflammation of the intestines, cirrhosis or hardening of the liver, and a condition of the kidneys identical with incipient Bright's disease.

NUMEROUS EXPERIMENTS conducted in recent years indicate very clearly the unwholesomeness of cane sugar when used in more than minute quantities. W. E. Deeks, who made observations in the Canal Zone, severely condemns the use of cane sugar, at least in the tropics. Doctor Kerley, of Brooklyn, published in 1907,

a report of observations made on seventy-eight patients, who showed symptoms of poisoning from the use of cane sugar, the toxic symptoms being manifested as bronchitis, asthma, acute head colds, rheumatism, chorea, eczema, vomiting and urticaria. These cases were cured by the withdrawal of cane sugar from the diet.

DOCTOR BLOSSER reports an interesting case in which a boy of eight suffered from an attack resembling delirium tremens after free use of brown sugar. The delirium tremens lasted three or four days and was very violent.

Chemical Fats Not Good Food

AT THE RECENT MEETING of the American Medical Association, Professor Mendel, of Yale University, presented an exceedingly interesting paper on foods and nutrition in which he gave an account of studies made for the purpose of determining the food value of various commonly used fats.

IN EXPERIMENTS UPON YOUNG ANIMALS Professor Mendel found that when lard was the only fat used, there was a cessation of growth and decline of weight at the end of three months. When butter fat was used there was no sign whatever of failure after feeding for a year or more.

COTTON-SEED OIL is mentioned by Professor Mendel as belonging in the same category with lard. In the same class also must be placed other much advertised chemical fats which have been recently offered as a substitute for butter.

IT IS EVIDENT that the processes to which these artificial products are submitted are such as to depreciate if not destroy their food value. Many facts have come to light in recent times which indicate that many of the processes employed in the preparation of food are damaging and sometimes highly destructive. Long cooking at high temperature destroys the vitamines of the food.

NOTHING WILL SO MUCH HASTEN THE TIME when body and mind will both be adequately cared for as the diffusion of the belief that the preservation of health is a duty: Herbert Spencer once said. "Men's habitual words and acts imply the idea that they are at liberty to treat their bodies as they please. . . . The fact is that all breaches of the laws of health are physical sins. When this is generally seen, then, and perhaps not till then, will the physical training of the young receive all the attention it deserves."

An Inexpensive Method of Purifying Water by Electricity

NOTHING IS MORE IMPORTANT for the health of a community than a pure water supply. This fact is recognized in the enormous expenditures made annually by cities and communities to secure and maintain a reasonably pure and safe supply of water for cooking and drinking purposes.

But all the efforts thus far made to insure perfect safety from water-borne disease for a large community, such as a city of a half-million or more, have thus far been only in part successful. Typhoid fever has been considerably diminished but by no means eradicated. Bowel disorders of various sorts due to impure water are still rife, especially in summer time. Complete sterilization of water cannot be accomplished by any method of filtration now known which is practical for use on a large scale.

EXPERIMENTS conducted within the last year at Corboune, Paris, and at Marseilles, offer encouragement that electricity may prove to be the long sought means for cheap and effective water purification. It has long been known that ultra-violet rays of light have a very remarkable germicidal effect, quickly destroying the vitality of the most virulent disease producing germs. The ultra-violet rays, through a discovery by Dr. Cooper Hewitt, may be produced in great quantity at very small cost by means of the mercury vapor lamp.

THIS NEW METHOD is not only the most efficient, but the least expensive method yet discovered. The electric current necessary for a single sixteen-candle lamp will sterilize perfectly fourteen thousand gallons of river water in twenty-four hours at a cost of less than one cent per thousand gallons. The apparatus is simple and not very expensive, and may be installed in private homes. The cost is so small that less than twenty thousand horse power would be required to completely purify all the water used for drinking and cooking purposes in the United States.

Do Not Poison the Child

THE WORLD LOVES TO QUOTE to itself Barnum's well known saying about a "sucker" being born every minute, and to congratulate itself that, while this may have been true in the great showman's day, it does not hold in ours. And then it turns around and pays a dollar or two dollars for a bottle of perfectly good well-water, to which perfectly harmless substances have been added to

give it coloring and flavor, swallows it for a headache, and obtains a remarkable cure(!). But the headache returns, and next time the wise one buys a less harmless concoction containing alcohol, acetanelid, morphine, opium, or other deadly poison that covers up the pain without removing the cause. The inevitable happens. The headache returns again, and yet again, accompanied by new symptoms, to relieve which stronger doses and new medicines are taken, until the habit becomes permanently fixed.

THE GROWING USE OF DRUGS so noticeable in our day may properly be held responsible, in part at least, for the enormous increase of disease which has occurred within recent times. To the use of drugs as much as to any other cause, perhaps more than any other, if we include alcohol, opium, and tobacco, may be charged the enormous increase in the insane—a class of defectives which has multiplied three hundred per cent in fifty years; in epileptics, who have also increased three hundred per cent; and in various other classes of defectives.

MANY DRUGS are highly useful as palliatives. Few drugs, however, are able to accomplish anything more than palliation. Almost the only exceptions are the small number of drugs which render service as germidices, antiseptics, antidotes and antiparasitic remedies. The famous Oliver Wendell Holmes once declared that if all the drugs were cast into the sea it would be so much the better for mankind but so much the worse for the fishes. The fact of great importance to which Doctor Holmes called attention in an address delivered before the Massachusetts State Medical Society, 1860, seems to have been largely forgotten. This eminent scientist and physician asserted that no matter how useful a drug may be, it always does harm; and the question in every case should be whether the good accomplished will be sufficient to balance the injury done.

THE SADDEST FEATURE of the whole business, however, is feeding the dope to infants by ignorant mothers. To quote Dr. E. Mather Sill, Lecturer in Diseases of Children at the New York Polyclinic Medical School and Hospital, "it cannot be too emphatically stated that the giving of patent medicines, cough syrups, soothing syrups, and patent diarrhea mixtures, teas, and so-called blood medicines or tonics by a mother or nurse to a young child, on her own responsibility, is most reprehensible and dangerous. Most of these preparations contain opium or alcohol in some form, drugs which are badly borne by infants and young children, and should never be given except under the directions of one skilled in their use. Many infants suffer each year from the effects of those nostrums given by well-meaning but ignorant mothers."

How Tobacco, According to von Moltke, has Affected the Turkish Character

A NAME often heard during these tempestuous times is that of von Moltke, the great German strategist, who planned the campaign against the French in 1870. In his "Letters from Turkey" von Moltke drew a contrast between the ancient and the modern Turks—the former fierce and untamed, the latter supine and sluggish to a degree,—attributing the change which has come over the people to the effect of tobacco. Von Moltke was not alone in his opinion, however, for as long ago as 1829, one Doctor Madden had published a book entitled, "Travels in Turkey and Egypt," according to which "the pleasure the Turks had in the reverie consequent on the indulgence in the pipe consisted in a contemporary annihilation of thought. The people really cease to think when they have been long smoking. I have asked Turks repeatedly what they have been thinking of during their long reveries, and they replied, 'Of nothing.' I could not remind them of a single idea having occupied their minds; and in the consideration of the Turkish character there is no more curious circumstance connected with their moral condition." This claim is borne out by Lane, the great translator of the "Arabian Knights," who says of tobacco that "in the character of the Turks and Arabs who have become addicted to its use it has induced considerable changes, particularly rendering them more inactive than they were in earlier times, leading them to waste over the pipe many hours which might be more profitably employed."

Batting the Rat

THE KANSAS STATE BOARD OF HEALTH has set on foot an anti-rat campaign, and has adopted as its war cry, "Bat the Rat." The crusade is very timely, inasmuch as it has been proved that plague and other diseases are transmitted from rat to rat and from rat to man. The India Plague Commission, after two years of thorough study, has summarized the situation thus:

1. Bubonic plague in man is entirely dependent on the disease in the rat.

2. The infection is conveyed from rat to rat and from rat to man solely by means of the rat flea.

3. A case of bubonic plague in man is not itself infectious.

4. A large majority of plague cases occur singly in houses. When more than one case occurs in a house the attacks are generally simultaneous. (This proves there is no soil infection.)

5. Plague is usually conveyed from place to place by rat fleas, which are carried by people on their persons or in their baggage. The human agent (the carrier) not infrequently himself escapes infection.

6. Insanitary conditions have no relation to the occurrence of place except in so far as they favor infestation by rats.

7. The known epidemic season is approached usually by acute plague in the rat, accompanied by a few cases in human beings.

A NEW CHAPTER in the history of race betterment work was opened when Governor Glynn appointed a mission for the purpose of investigating "the subject of the public provision for the care, custody, treatment, and training of the mentally deficient, including epileptics." New York is by no means the first State to study in a thoroughgoing manner the problems connected with the increasing number of its mental defectives. What makes the appointment of the New York commission noteworthy are the remarkable opportunities which it has for study—splendid institutions that have already made history in welfare work, experienced men and women to contribute of their wisdom, and a determination on the part of the people at large that the investigation shall get down to the bottom of things and discover the real—not theoretical—causes of feeble-mindedness.

False Health Teaching

THE FOLLOWING EXTRACT from an article in the *Country Gentleman,* by Ida C. B. Allen, is a fair sample of the unscientific health teaching with which the newspaper press and the magazines also, for that matter, are flooding the country:

" 'Yes, my boys always eat hearty,' a farmer's wife remarked as I stepped into her kitchen one summer noon. 'Fact is, I can't fill 'em up.'

"On the table was a bowl of steaming cabbage, a dish of beets, another of cucumbers, an enormous plate filled with white bread, while the place of honor was occupied with a great platter of boiled potatoes; an apple pie lurked in one corner. *There was no meat or other article that supplies protein in sight—only the table loaded with starchy food.* Frank ate seven potatoes and ten slices of bread, while as for Gus, I lost count.

" 'It certainly is queer,' the mother went on, 'that here in this air Frank has headaches, but Gus is healthy enough; just see how fat he is.'

"'And lazy, too.' I inwardly remarked, for he was overburdened with flesh.

"Potatoes—*three times a day,* week in and week out, fried and boiled and fried again. Of course, Frank suffered with headaches, for rebellious nature was remonstrating against the potato habit; of course Gus was fat and lazy, for nature was kept so busy disposing of the excess starch that she finally gave up in despair and let obesity and autointoxication have their way.

"Potato eating has become a habit, not because potatoes contain enough nourishment to carry on life, but because they are cheap, easy to prepare and bulky enough to fill up the stomach. The potato consists almost entirely of starch, and though this has a place in the diet it is not capable of building up strength and muscle. Constant reference is made to the hardihood of colonists and early settlers. They were not raised on a potato diet, for the potato was a luxury as late as 1800, to be served with sugar, nutmeg and mace. It is a product of more recent years, part and parcel of the struggle to keep down the living expense at the cost of the body.

"'This does not mean that potatoes should be eliminated from the dietary, for, like every other food, they have a definite mission to fulfill; but they must be used with discretion and in proper combination. Excessive use brings an inevitable trial of anemia, obesity and autointoxication."

NOTHING could be further from the truth than the assertion that potatoes promote anemia and autointoxication. It has been demonstrated by experiments conducted in the Pasteur Institute by Metchnikoff and his colleagues that the free use of potatoes is one of the best means of combating intestinal autointoxication. The potato besides contains a large amount of alkaline salts which are of greatest value to the body. The Irish boys and girls build up sturdy constitutions on a diet of buttermilk and potatoes. The bill of fare which this writer condemns could scarcely be improved unless graham bread were substituted for fine flour bread, although even fine flour bread contains a considerably larger proportion of protein than the body requires.

DOCTOR CHEYNE, a Scotch physician who lived during the first half of the eighteenth century, found temperance in meat eating and drinking the best of all cures for chronic disease. "For those who are extremely broken down with chronic disease," he said, "I have found no other relief than a total abstinence from all animal food, and from all sorts of strong and fermented liquors. In about thirty years' practice, in which I have (in some degree or other) advised this method in proper cases, I have had but two cases in whose total recovery I have been mistaken."

Grimkin--The Other Kind

WALT MASON paints a vivid picture of the old-fashioned grocer, and, in contrast thereto, the modern merchant who has discovered that it pays to keep a clean store: "Jim Griggins the grocer's a seedy old jay; his whiskers are ragged, his hair all astray; his hands are begrimed when he weighs out our squash, his garments suggest that they're fit for the wash. And Griggins keeps saying, when people will list, 'The country is going to blitzen, I wist! My trade's growing duller—I can't make it thrive—I haven't one patron where once I had five!' But Grimkin, the grocer just over the way, is selling his prunes and his Young Hyson hay; he always seems busy, he takes in the scads, the roubles, the rhino, the dust of our dads. But Grimkin is always in natty array, his whiskers are combed in the Ham Lewis way; his bald spot is washed till it mirror-like gleams, his shirt has no butter or lard on its seams, his trousers are creased and don't bag at the knees, his shoes aren't spotted with Limburger cheese. And all through his store things are nifty and clean, from codfish and soap to shredded sardine. So people parade to his place by the score, while Griggins is grouching around in his store."

Chronic Intestinal Putrefaction

CONSTIPATION and the absorption into the system of virulent poisons due to decaying foodstuffs in the colon formed the keynote of a paper read by Dr. Charles C. Sutter before the Central New York Medical Association, and reported in the *New York State Journal of Medicine* for September, a paper that was as remarkable for its grasp of the subject as for the breadth of the author's point of view. Doctor Sutter insists on the importance of perfect team work between the various organs of the digestive system, since "each portion of the digestive tract has a definite function and can perform this function within certain limits. The organs of elimination also have a definite capacity for work in the normal individual. It is because of this limitation that the quantity, quality and the type of food is of so great importance."

THE PERFECT FUNCTIONING of the various digestive organs is emphasized by the fact that "the amount of food which may be handled by the body varies necessarily under special conditions; the adult requires more food than does the child; a man at work, more than one at rest; and an emaciated individual less than when he was in a more robust condition; the individual living in the South requires less and a different kind of

food from the individual living in the north; an invalid a different quantity and quality of food than when he was healthy, the type and the amount depending upon the nature of the illness and the degree of pathological alteration."

AND UPON THESE VARIATIONS in the amount of supply depends—to a greater extent than most people are willing to believe—the health of the body: conservative authors, indeed, have attributed ninety per cent of all chronic illness to disorders of the digestive system. Says Doctor Sutter on this point, "Disease may be caused by taking too little or too much food, by a diet that does not contain the combination of food elements in correct proportions, and by the entrance into the body of many poisons or disease germs with the food and drink. The diseases due to the taking of insufficient food are starvation, malnutrition, marasmus and some forms of anemia. The disturbances due to overeating or the taking of improper food is manifested in various ways. Food, by producing irritation in the alimentary tract, may be the cause of acute indigestion, diarrhea, and the like. Excessive amounts of food assimilated may be deposited as fat and cause obesity, or, by overworking the organs of excretion, produce degeneration or sclerosis. The kidneys, liver, and the heart are the organs most likely to suffer, but the nervous system may also be affected. In epileptics attacks may be brought on by overfeeding. Gout, lithemia, and the like are among the diseases caused by a too generous diet. Overeating is probably as prolific a source of disease as over-drinking, a fact that is generally recognized."

COMING TO THE REAL SEAT OF TROUBLE, the place, one might say, where disease is manufactured, the colon, we find that "excessive intestinal putrefaction is quite frequently caused by the entrance with the food of putrefactive bacteria, by the ingestion of improperly cooked food, by improper mastication and the consumption of excessive quantities of food, particularly meat, poultry and fish. The use of an excessive quantity of meat frequently goes hand-in-hand with imperfect mastication. The result is that many masses of muscle fibre find their way through the small intestine into the lower ileum and large intestine, where they are attacked by putrefactive bacteria. The toxins produced by intestinal putrefaction which are able to pass the lines of defense of the body cause systemic manifestations of varying types."

THE EVIL IS ALL THE GREATER by reason of the constipation of the large intestine, brought about in part by sedentary habits and lack of exercise, and to a great extent by wrong habits of diet. The "universal disease," the author calls constipation, a

condition "brought about by our sedentary life, the strenuousness of modern daily life, and by the substitution of a cellulose-free diet for the diet of our grandparents. The outer layers of the wheat kernel, found in the coarse flours, the coarsely rolled oats, the coarse corn-meal, the fruit dried with the skins on, all supplied bulky cellulose. The pan of apples which was brought from the cellar evenings, the nuts and popcorn, too, that were always in store for an evenings refreshments, were abundant sources of cellulose. In their place today we find chocolates or food that is completely digestible, leaving no residue and supplying an excess of sugar which must be eliminated. Because we are amply nourished on a diet of meat and sweets, both concentrated and of high caloric value, we thoughtlessly leave out another essential—the bulky, fibrous, and watery vegetables and fruits. To make room for these our grandparents reduced the amount of meat and sweets.

"Vegetables and fruits not only supply bulk in the digestive tract, but they stimulate peristalsis, acting as a gentle irritant to the lining membrane of the digestive tract. In addition they supply the salts necessary for the organs and tissues in order that they may function properly. Sodium chlorid is necessary for the production of hydrochloric acid in the gastric juice. Without calcium our bones would become too soft, our heart beat would become too slow. The most common foods in our diet—white bread, meat and potatoes—are deficient in calcium. Without iron our blood would be deficient in hemoglobin. The food supplying the most iron in an available form is not red meat, but spinach—a green vegetable."

AND CONSTIPATION brings us to that other condition which is growing more and more prevalent in these days—old age. "Senility," says Doctor Sutter, "is a relative term. A person may be old and not senile, or, he may be middle-aged and senile. The presence of the senile process is an indication for certain lines of management and treatment, regardless of the age. The diet must be regulated so as to keep up the nutrition and the proper muscular strength. Fermentative and putrefactive changes in the intestinal tract must be prevented, and irritants, that circulate in the blood and cause a rise in blood-pressure, endarteritis, and irritation of the kidneys, must be eliminated."

GROW younger as you grow older by cultivating love for a good, healthy body. Keep the mind free from worry and the body free from unnecessary food. Live with the greatest regularity and moderation, taking systematic exercise.—*Plato.*

Electrocuting Milk Germs

ELECTROCUTION of milk germs is the latest method of providing safe milk, says the *Saturday Evening Post.* Much of the milk supplied from the large public stations in Liverpool is now treated in this way. The harmful bacteria are nearly all killed, so that a capped bottle of milk will keep sweet for eight days. Various methods were tried in the effort to find one that would kill the germs without altering the chemical composition of the milk. A rapidly alternating current at a pressure of about four thousand volts succeeded. Apparently the composition of the milk is not changed at all, and the city puts it out as raw milk. The operation is a simple one. The milk is allowed to flow through a long glass tube; and in this tube, near the ends, are placed two short copper rods. The electric supply is connected with the two copper rods. The milk flows through the tube so rapidly that it passes the two rods in a few seconds, getting by before it is heated very much.

Military Evidences of Race Degeneracy

THAT THE HUMAN RACE, or at least the civilized portion of it, is fast degenerating has been suspected for some time. Within the past fifty years writers in various countries have called attention to signs of deterioration, but no evidence has been of more absorbing interest than that supplied by the British commission known as the Interdepartment Committee on Physical Deterioration in Great Britain, which had charge of the investigation of this problem in the British Isles.

THE COMMITTEE conducted a careful inquiry extending over several years, in the course of which testimony was taken from all classes of persons likely to be able to throw any light upon the subject, particularly physicians, sociologists, magistrates, scientists, clergymen and military officers.

THE VOLUMINOUS REPORT published by the Committee presents a considerable number of facts of great significance, as indicating that race degeneration is actually taking place in Great Britain. It was stated, for example, on page 177 of the Report, that in Manchester and other manufacturing districts, evidences of degeneration are very marked. There is a distinct depreciation of stature. In Manchester and Salford, for example, it has been found necessary to import men from the country to act as policemen, as a sufficient number of men large enough to serve in this capacity cannot be found in the districts named.

AN ARMY RECRUITING OFFICER testified that sixty per cent of the young men offering themselves for military duty were rejected on account of physical unfitness, and this notwithstanding the fact that the standard for admission to the army had been reduced within the past sixty years from five feet six inches to five feet. In the examinations for admission to the army, it was found that out of every thousand applicants, nearly six hundred were under the old standard, and more than half had a chest measurement of less than thirty-four inches, the minimum standard of forty years ago. It was found also that notwithstanding the great reduction in the height standard, the proportion of persons rejected because of small stature was not decreased.

A ROYAL COMMISSION appointed in 1902 also took evidence in various parts of the British Isles which throws remarkable light on the relation of bad environment to degeneracy. Reporting its findings in Scotland, for example, the commission said that "it is enough that we find, by comparing the statistics of Aberdeen and Edinburgh, and quite as much by comparing those of the better with the poorer schools in Edinburgh itself, evidence, that, whatever may be the case with the population as a whole, there exists in Scotland an undeniable degeneration of individuals of the classes where food and environment are defective, which calls for attention and amelioration in obvious ways, one of which is a well-regulated system of physical training."

Commenting upon this report, the Inspector-General of Recruiting states that "the one subject which causes anxiety in the future, as regards recruiting, is the gradual deterioration of the physique of the working classes, from which the bulk of the recruits must always be drawn."

THIS ANXIETY IS NOT TO BE WONDERED AT when we recall that the British army, as in the case of every modern army, must recruit itself for the greater part from the lower classes of the population, the classes in which deterioration is found more actively at work. This is reflected in the lowering of the height standard. For admission in the British army in 1845 the standard was five feet six inches. By 1883 the standard had been lowered to five feet three inches, and by 1900 to five feet. In the year 1901 out of every one thousand soldiers 593.4 were under the old standard of five feet six inches, while 511.8 were under the chest measurement of thirty-four inches, the standard in 1883. Again, a change appears in the weight. In 1871, 159.4 per thousand were under 120 pounds in weight, whereas thirty years later the proportion had increased to 325 per thousand.

WITHIN THE PAST FEW MONTH Doctor Tredgold, an English authority of high repute, and well known for his studies in eugenics, has contributed an article to the *Quarterly Review* in which he presents most conclusive evidence of a "distinct decline in the vitality of the English people and to growing sickliness." Doctor Tredgold calls attention to a fact that has apparently been generally ignored by sanitarians, that average longevity is not a correct measure of race vigor. Says Tredgold: "It would be extremely fallacious to conclude that a diminished death-rate is any indication of an increased power of resistance to disease and an improvement in the inherent vitality of a race."

Statistics gathered by Doctor Tredgold from various friendly societies, aggregating a membership of nearly a million and a half, demonstrate that notwithstanding the great advance in the prevention of disease through public sanitation and improvements in therapeutics the average amount of sickness at all ages has steadily increased during the last half century.

DOCTOR TREDGOLD also shows that the decline of the death rate in England has been confined to ages under fifty. Rittenhouse, Fish and others who have made studies of this subject in our own country, have shown that within the past thirty years there has been a very pronounced decrease in the life expectancy of men over forty to forty-five years of age.

THE REPORTS of the United States Census Bureau is a mine of most interest and valuable information on this subject. They show that the notable increase in the average longevity which has occurred within the last two or three centuries is solely the result of the suppression of acute maladies in infants and adults. This is clearly shown by the fact that along with the decrease in acute maladies of various sorts there has been a steady increase in the mortality rate of most chronic maladies.

THE MORTALITY RATE from Bright's disease in the United States, for example, has decreased 131 per cent within the last thirty years, as shown by Rittenhouse. The mortality rate from diabetes, in spite of great improvements in the treatment of this disease, has in the last dozen years increased fifty per cent. The mortality from appendicitis and acute maladies chiefly dependent upon chronic infection of the colon, in spite of the great number saved by surgical intervention has increased more than twenty per cent in a dozen years. Mr. Rittenhouse, the able expert of the Equitable Life Insurance Company, has shown that the mortality from chronic disease in general has doubled within thirty years.

THESE conditions, with this other fact that they are not confined to any one country, but are to be met with among all civilized people, constitute a powerful arraignment of modern civilization. Most elaborate public health services have been put at work, but thus far they have utterly failed to prevent race degeneracy; indeed, they have actually accelerated the rate of decay. Acute maladies and adverse conditions of life are a natural means of weeding out weaklings and securing the survival of the fittest. Public health work, through quarantine, protection of water supplies, and improving the general environment of human life, has in a large measure set aside this great biological law. It is no longer the fittest alone that survive, but also the feeble individuals who are afforded sufficient protection. The preservation of these weak and unfit individuals increases the average death age rate, but at the same time decreases the average stamina of the race. Through heredity, weak strains are established which must corrupt and depreciate the stronger ones more and more from one generation to another.

THE TROUBLE IS that present conditions of living take men and women out of harmony with the great biologic laws which govern human life, laws which impose penalties for the vicious habits of eating, faulty dress, indoor living, and bad conditions of work and employment. What we need is a change in the manner of living that will bring the individual back into closer touch with Nature and natural ways of doing things. For if race degeneracy is to be arrested, it will be accomplished only by the development of a better type of man, a tougher, more enduring machine more capable of wrestling successfully with the problems of the twentieth century, and of the greater and more strenuous centuries to come. And the means of accomplishing this is not by flouting the great natural laws which govern the universe, but by conforming our conduct to them.

Some Good Health Spice

"THAT," said the physician, as he examined the lump on the man's neck, "is the remains of an old boil that started to come and then became encysted there."

"Well," said the unlettered patient, "it sure has encysted on stayin' there."—*Chicago Evening Post.*

"GOOD MORNING, Mrs. McCarty!" said Mrs. Ryan, as the friends met at the market. "How's all the folks getting along?"

"They be all doin' well," replied Mrs. McCarty, "except my old man. He's been enjoyin' poor health for some time, but this mornin' he complained of feelin' better."—*Exchange.*

COUNTRY DOCTOR (superintendent at Sunday-school)—Now, children, who can tell me what we must do in order to get to heaven?

BRIGHT BOY—We must die.

COUNTRY DOCTOR—Quite right, but what must we do before we die?

BRIGHT BOY—Get sick and send for you.—*Boston Transcript.*

THE trip was very rough and poor Smith lay in a chair, moaning and groaning with each rise of the ship. Little Alfred Smith persisted in annoying Mrs. Smith, who was having her individual difficulties.

"George," she said, "speak to Alfred, please."

"Hello, Alfred," said Smith.—*Exchange.*

SOME time ago the keeper of a museum was engaged in placing some new curios that had just arrived from Egypt, when he noticed a perplexed look on the face of his attendant.

"What's the matter, Smith? Anything you don't understand?"

"Yes," answered Smith. "Here is a papyrus on which the characters are so badly traced that they are indecipherable. How shall I class it?"

"Let me see," returned the keeper, examining the curio. "Just call it a doctor's prescription in the time of Pharaoh."—*Philadelphia Telegraph.*

THE PASTOR of a well-known Boston church was calling a short while ago on a dear old lady, one of the "pillars" of the church to which they both belonged. Looking upon her sweet, motherly face, which bore few tokens of her ninety-three years of earthly pilgrimage, he was moved to ask her: "My dear Mrs. Adams, what has been the chief source of your wonderful strength and sustenance during all these years? What do you consider has been the real basis of your extraordinary vigor of mind and body, and has been to you an unfailing comfort through joys and sorrows?"

The good pastor waited with unusual eagerness for the old lady's reply, which she gave, after a moment's reflection, while her kindly old eyes were dimmed with tears.

"Victuals," she answered, briefly.—*Harper's Magazine.*